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BETTER FRUIT

VOLUME XII

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U. S. Department of Agriculture

SPECIAL FEATURES

Apple Packing Instructions.

Distribution—Showing all the cities under 3,000 population sold in carlots direct from Northwest.

Government Statistics on the Apple Crop of United States.

Northwestern Apple Crop Estimates.

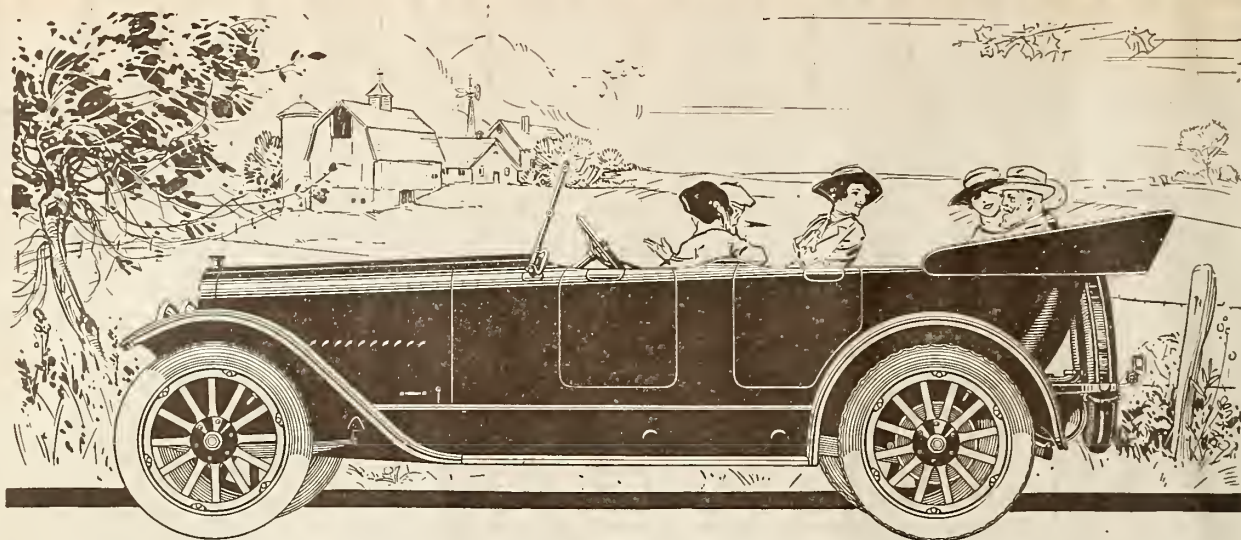
Government Prices on Farm Products, Showing Increased Prices from 1909 to date.

Bitter Pit, or Core Rot—Continued.

BETTER FRUIT PUBLISHING COMPANY, PUBLISHERS, HOOD RIVER, OREGON

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BETTER FRUIT

AN ILLUSTRATED MAGAZINE PUBLISHED MONTHLY IN THE INTEREST OF MODERN, PROGRESSIVE FRUIT GROWING AND MARKETING

Packing Apple Ammunition

By O. H. Barnhill, Ashland, Oregon

THE writer desires to present to the apple growers of the United States a preparedness program to be used in the impending war with fruit consumers in this and other countries. The great war has proven the importance of plenty of ammunition, rightly prepared. Battles are not decided so much by the number of men engaged as by the projectiles which the attacking army is able to throw into the ranks of the enemy.

So it will be in the impending fruit fight. The army of growers which is best prepared with projectiles in the shape of Baldwins, Jonathans, Greenings—and, of course, Spies—will be the first to cause consumers to capitulate and pay a handsome tribute in the coin of the realm. The most effective work is done by the big guns: those which land on the eating public with three and four-tier fruit balls. It is well nigh useless to shoot little five-tier culls and crabs at the consumer.

It is a debatable question whether these luscious balls should be encased in barrels or boxes. It is an undeniable fact, however, that the apple-growers' army of the Northwest has succeeded in exacting the highest tribute from consumers in previous wars, and with them the bushel-box cartridge is a prime favorite. Other armies have emulated their example in a small way, generally with excellent results. More would prepare the same kind of ammunition if they knew how. Skilled packers are hard to get and demand high wages.

This message from a private in the ranks is addressed to other soldiers of the soil and gives away all the secrets of the apple-box trade. The first thing needful is a factory for filling fruit shells, or boxes, with apple ammunition. A cheap building will suffice, but it should be roomy and well lighted with windows on the south side. It need not be more than eight feet to the eaves, as it is unprofitable to pile boxes more than six high. A long building is best, because it affords plenty of room for packers and graders along the south side. Sixteen by forty-eight feet is about right for a thousand-box crop. Large growers have picking and packing crews working at the same time, the fruit being delivered from the orchard at one side of the building and the packed product taken away to the warehouse from the other side.

It is a common practice to pack from a table consisting of a square frame with burlap or canvas stretched across the top, upon which the apples are poured. The apples are more or less bruised by this method, especially the

odd specimens, which are apt to be picked up and thrown down again a number of times. A better plan is to pack direct from the boxes, using the same table on which the fruit is being graded. This table is made of two twelve-inch boards running along the south wall and supported by cross strips underneath four feet apart, from which legs extend to the floor. To get the right height, set a box crosswise on the table and have a workman of medium height stand in front of this box, which should be high enough so the tips of the fingers will touch the bottom when the arms are extended. The table should slope upward toward the wall so the end of the box farthest from the packer will be about six inches higher than the near end. A half-inch strip or a row of cleats nailed along the lower side of the table prevents the boxes from sliding off.

Grading machines are a great convenience, but they are quite costly and only separate the fruit into sizes, leaving the quality grading to be done by the packers. The latter are not apt to

do a good job of grading, since they are paid by the box and haven't time to inspect each apple. If the apples must be given a separate sorting in order to grade for quality they might as well be divided into sizes at the same time, as this will take little extra work. It isn't necessary to have all the apples in a box of exactly the same size. In fact it is easier to pack from a box in which some of the apples are slightly larger than others, as it is sometimes necessary to use a little larger apples in the middle of the box to make the bulge or crown.

All the four-tier sizes—96 to 125—of one grade may be put into one box and the four and one-half-tier sizes—138 to 175—into another. Those smaller than 175 go into one box and those larger than 96 into another, making four boxes into which the apples are separated. The packers subdivide the four-tier fruit into four sizes: 96, 104, 112 and 125; the four and one-half tiers into an equal number: 138, 150, 163 and 175. The number of sizes into which the little and big apples are divided de-



Top View of Three-tier Pack. 138, 150, 163 and 175 Apples. By O. H. Barnhill, Ashland, Oregon



Top View of Three-tier and Two-tier Packs. 125, 112, 96 and 88 Apples. By O. H. Barnhill, Ashland, Oregon

depends upon how small are the former and how large the latter.

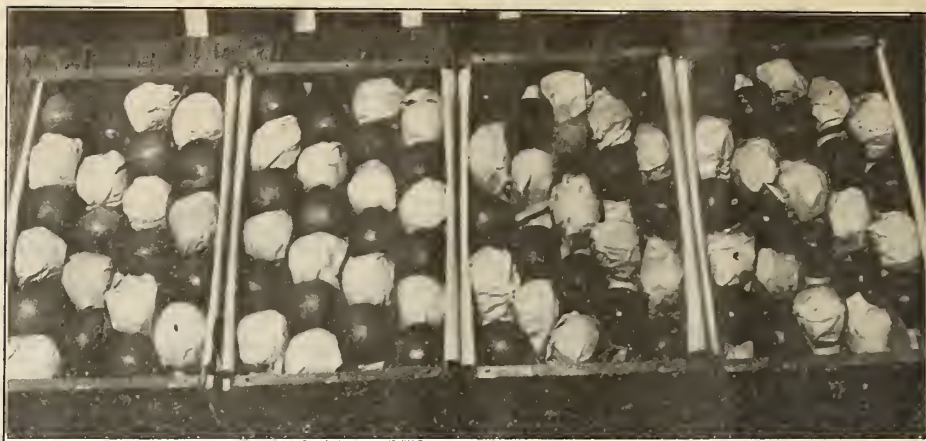
Sample apples are a great aid in size grading. Select specimens of the largest and smallest sizes which go into each box and keep them in front of their respective receptacles. These guide apples should be of characteristic shape, as unusually long or flat apples are apt to mislead.

Here in the Northwest there are three standard grades: Extra Fancy, Fancy and Choice. These grades have been found very unsatisfactory and growers elsewhere are not advised to follow them. In the first place, the names are misleading, because the word "choice" conveys an idea of quality equal to "fancy" in the mind of the eating public. Furthermore, it is impracticable to divide fruit into more than two merchantable grades. Fancy and Extra Fancy are practically the same, no material blemishes or defects being allowed in either, so why take all the trouble of keeping them separate? The difference is more in name than in fact, or would be if the grading rules were followed to the letter.

As a matter of fact each man is a law unto himself when it comes to grading fruit. No two persons will interpret a set of grading rules in exactly the same way, any more than they will a collection of rules for conduct, such as the Ten Commandments. Furthermore, a consideration for one's own interests or the interests of one's employer, real or fancied, will influence one's judgment, consciously or subconsciously, no matter how conscientious one may be. To these peculiarities of the human mind is due the differences in individual brands of fruit, as much as to the quality of the product produced.

Regardless of grade names, most fruit is considered as either first or second quality and may—in fact should be—considered as such. Just where to draw the dividing line between firsts and seconds is a debatable point and one upon which no hard-and-fast rules can be laid down. It is well enough to say that "all red varieties shall be at least seventy per cent good red color," but what constitutes "good red color"? Moreover, some varieties are a good deal redder than others and it would be an obvious mistake to insist that a Ben Davis should have as much color as an Arkansas Black, or even a Gano. So let us say that red varieties shall be well colored to admit them to the first grade, and let it go at that.

First-class apples must also be well shaped, which is another place where one's judgment is permitted considerable play. Both first and second-grade apples must be in good condition—not shriveled—free from worms, scale or other insect pests, and the first should be practically free from scab, stings, soft or dry rot, bruises, watercore, limb rubs, skin breaks, missing stems, russet spots and any other injuries or imperfections. In the interpretation of this rule care should be taken to distinguish between picking and other bruises, since the former may be admitted if not too large or numerous. Small and inconspicuous russet spots and frost



Side View of Three-two and Two-two Packs. 125, 112, 96 and 88 Apples.
By O. H. Barnhill, Ashland, Oregon



Side View of Three-two and 4½-tier Packs. 138, 150, 163 and 175 Apples.
By O. H. Barnhill, Ashland, Oregon

marks may be passed. It is hard to draw the line here, because some varieties, such as the Newtown, naturally have a good deal of russetting around the stem. So it is with stings, scab and limb rubs, which are often concealed near the calyx or hidden by russetting, being of such microscopic dimensions that only the closest scrutiny will reveal them. And yet, if a grader be instructed to admit even the very tiniest of blemishes he is apt to overlook some that are quite large. The old saying, "Give a man an inch and he will take a mile" applies with peculiar force to fruit grading. The most stringent rules are the safest for the average workman.

Second-grade apples should be in good condition and free from insects. They may be somewhat misshapen, but should not be "crooked up" by aphids. Neither should they be too badly "stung up," although a few blemishes of this kind may be omitted, care being taken to distinguish between a sting and a worm hole. When in doubt, throw it out. The rule for scab is to pass a spot as large as a dime, or a number of spots whose combined size is no larger than a dime. The same rule might apply to limb rubs. Bruises and rotten spots should, of course, be excluded.

The four boxes into which the four sizes of first-class apples are graded should be placed on one side of the box from which the apples are being sorted, with four boxes to receive the seconds

on the other side. Culls are thrown into a box beneath the table. As the boxes are filled they are stacked away for packing, each size and grade being piled separately.

Girls make better packers and graders than men, because they are more careful and teachable. On the other hand, they are not strong enough to handle a box of apples, so it is necessary to furnish male help to carry the fruit to and away from them. The usual price paid for packing is five cents a box and for grading two cents, the latter for boxes level full. One cent a box is paid for nailing up boxes, a nailing press being needed for this work. The same price is paid for making boxes, for which a table is provided with two sets of thin boards fixed in an upright position to hold the end pieces. Five-penny box nails are used, four for each cleat and side board. If the cleats split they should be soaked in water.

Apple paper generally comes in two sizes, 10x10 and 9x9, the former for four-tier sizes and larger, the latter for four-and-one-half tier and smaller. Cardboard is no longer used between the layers, but one sheet is placed in the bottom of the box and one on top, inside the lining paper. Two sheets of the latter are folded over the sides of the box, the edges lapping over the crack in the bottom. The wrapping paper is held in a shallow tray fast-

Continued on page 25

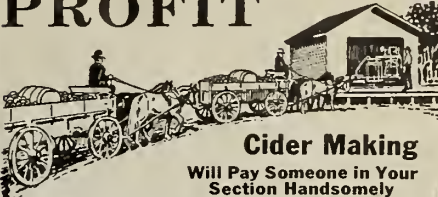
Monthly Crop Report, Dept. of Agriculture

All farm products have shown a steady increase in price, with very few exceptions, from 1910 to 1917. The following table is not only very interesting but very instructive. Attention is called to a few of the important products and the increases shown: Hogs, \$8.15 to \$13.35; beef, \$4.84 to \$8.30; sheep, \$5.47 to \$9.32; wool, 19.0 to 54.3; milch cows, \$42.86 to \$72.81. Horses are an exception, showing a decrease from \$148 to \$135, probably due to automobiles and auto tractors. Cabbage, \$2.27 to \$3.23; onions, \$1.04 to \$2.01; beans, \$2.34 to \$8.07 (nearly 400% increase, possibly due to the large demand for beans for army requirements); wheat 90.4 to 228.9; corn, 78.1 to 196.6; oats, 49.8 to 73.7; barley, 57.1 to 114.5; potatoes, 83.6 to 170.8; hay, \$9.28 to \$13.42; cotton, 10.3 to 24.3; butter, 22.4 to 34.0; eggs, 19.2 to 29.8.

There is no comparison on apples, as the prices given are for the 1916 crop. The increase in every commodity with

the exception of apples, which is not shown, is all the way from 50 to 300 per cent. It does certainly seem that with every product increasing in price, as given in the above scale of percentages, that the United States, the richest nation of the world, possessing over one-third of all the gold in existence, having a banking capital reported equal to all the other nations combined; in connection with the immense export trade to the warring nations, which are largely dependent upon the United States for supplies; with business more prosperous than it has been in the history of the country; with everybody at work at splendid wages, the opportunity for getting good prices on apples is certainly very hopeful, and so far as we can see there is no reason why, if the apple crop is properly handled and properly distributed, growers should not get splendid prices—prices that will afford them a good living, pay them well for their labor and a reasonable amount on the investment.

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MONTHLY CROP REPORT DEPARTMENT OF AGRICULTURE—ESTIMATED CROP CONDITIONS AUGUST 1, 1917, WITH COMPARISONS

STATE	APPLES									PEACHES					PEARS					GRAPES	
	Condition August 1		Forecast 1917 from Condition			December Estimate 1916		Condition August 1		Forecast 1917 from Condition			Condition August 1		Forecast 1917 from Condition						
	1917	Ten-Year Average	Total August 1	Total July 1	Commercial August 1	Total	Commercial	1917	Ten-Year Average	August 1	July 1	December Estimate, 1916	1917	Nine-Year Average	August 1	July 1	December Estimate, 1916	1917	Ten-Year Average		
Maine	P.ct.	P.ct.	Bu.*	Bu.*	Bbbs*	Bu.*	Bbbs*	P.ct.	P.ct.	Bu.*	Bu.*	Bu.*	P.ct.	P.ct.	Bu.*	Bu.*	Bu.*	P.ct.	P.ct.		
New Hampshire	62	64	4,630	4,905	848	5,040	941	..	..	..	..	..	55	74	26	34	38	..	..
Vermont	58	63	1,350	1,335	203	1,596	250	76	63	47	48	24	60	73	19	23	25	..	..
Massachusetts	60	67	2,064	2,331	275	3,312	497	..	..	..	..	..	60	73	16	21	21	..	..
Rhode Island	63	67	2,623	3,084	401	3,450	517	90	57	145	129	66	65	74	83	97	114	83	85		
Connecticut	56	68	263	314	13	261	13	83	60	27	29	14	59	76	9	12	14	85	84		
New York	40	59	1,512	1,886	126	1,830	153	84	65	281	310	134	66	75	37	40	46	86	85		
New Jersey	55	61	22,186	26,468	3,697	37,800	6,930	80	52	2,216	2,161	1,238	61	63	1,629	1,658	1,675	86	80		
Pennsylvania	53	58	1,977	2,325	363	2,250	413	65	63	858	1,040	689	53	63	563	639	687	85	86		
Delaware	73	59	14,310	16,158	1,431	18,621	1,862	60	52	1,440	1,435	1,069	57	64	447	502	509	83	77		
Maryland	62	60	436	428	79	249	37	86	52	671	650	346	68	50	266	254	164	82	83		
Virginia	55	58	2,610	2,652	365	2,544	297	77	56	962	1,000	600	65	59	486	508	378	82	80		
West Virginia	44	54	10,725	10,725	1,572	13,299	1,995	53	50	848	848	660	49	51	173	148	122	82	80		
North Carolina	44	58	5,861	5,594	781	10,032	1,271	60	47	810	596	520	34	46	40	36	42	80	74		
South Carolina	65	58	6,669	6,464	489	7,074	637	65	57	1,495	1,333	897	58	52	145	130	75	83	82		
Georgia	83	56	859	844	5	588	4	86	59	1,124	1,029	545	74	58	96	94	56	86	78		
Florida	71	58	1,687	1,687	185	1,623	157	67	63	4,319	4,254	3,510	48	59	122	134	135	82	80		
Ohio	45	48	8,724	9,305	872	8,601	860	21	46	103	101	119	27	57	40	40	54	..	..
Indiana	58	49	6,076	6,744	546	3,921	261	35	45	651	698	1,350	41	55	330	362	376	81	78		
Illinois	65	44	8,233	8,075	961	4,848	566	17	41	648	725	888	51	53	375	404	351	79	79		
Michigan	46	56	8,803	9,893	1,115	12,480	1,414	26	55	442	485	780	58	46	439	427	354	81	76		
Wisconsin	72	59	3,305	3,435	153	2,634	105	..	..	806	822	2,010	64	63	737	804	836	82	77
Minnesota	72	62	3,435	3,435	153	2,634	105	..	..	..	..	..	85	69	..	..	26	90	81
Iowa	72	62	1,426	1,474	48	1,266	42	..	..	..	..	..	..	..	..	..	85	79	..
Missouri	60	48	6,169	6,397	205	4,725	110	5	26	39	72	64	48	42	75	90	63	50	76		
North Dakota	54	46	11,886	12,352	1,110	8,100	675	15	37	900	1,110	1,080	48	41	216	229	164	72	72		
South Dakota	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nebraska	80	60	367	360	5	348	5	..	..	..	..	..	..	..	..	..	94	75	..
Kansas	65	50	2,436	2,697	162	1,701	142	..	29	..	..	30	50	50	14	16	10	25	71
Kentucky	42	45	2,957	3,656	247	3,120	208	10	37	290	339	150	48	50	87	116	77	50	66		
Tennessee	65	53	8,619	8,463	431	6,441	215	52	48	1,144	1,187	880	44	50	183	184	160	78	76		
Alabama	50	52	5,018	5,319	201	5,316	177	36	50	1,080	1,213	1,080	30	45	72	78	59	73	75		
Mississippi	66	51	1,390	1,252	24	1,140	19	58	55	1,769	1,355	1,110	45	53	95	93	90	80	73		
Louisiana	53	50	374	360	6	348	6	63	56	1,134	940	975	50	55	96	101	90	76	73		
Texas	50	56	..	..	..	..	..	55	55	451	405	567	60	63	42	38	49	73	78
Oklahoma	58	59	414	396	14	468	20	45	54	2,205	2,254	2,860	60	60	254	254	322	65	72		
Arkansas	63	57	1,495	1,632	49	825	27	44	49	1,012	1,022	230	45	48	35	41	11	56	67		
Montana	66	56	4,140	3,859	758	3,054	611	40	60	1,920	2,975	2,340	60	52	82	75	68	75	74		
Wyoming	67	75	925	1,253	139	768	102	..	..	..	..	..	50	72	9	14	6	..	..
Colorado	73	66	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
New Mexico	80	57	4,013	4,195	670	2,205	367	86	45	1,178	1,315	405	80	57	195	207	99	87	71		
Arizona	59	64	646	766	129	357	59	35	51	60	51	40	55	65	45	45	36	70	73		
Utah	65	76	129	151	16	138	17	80	72	60	56	66	82	78	21	21	18	90	89		
Nevada	94	66	846	852	141	99	3	95	60	428	428	84	86	63	56	54	12	90	80		
Idaho	80	51	216	192	2	48	..	55	54	6	5	1	76	61	6	6	2	100	75		
Washington	90	74	2,025	2,153	238	441	15	85	60	170	150	25	75	71	71	81	50	88	82		
Oregon	81	78	8,505	8,091	1,985	9,675	1,935	80	68	552	552	415	78	79	566	581	551	83	86		
California	67	77	3,329	4,173	388	3,855	514	68	69	320	320	276	70	75	560	640	555	83	87		
	82	79	5,515	5,646	1,196	5,754	1,247	90	79	10,080	10,080	8,808	90	79	1,989	2,037	1,784	95	90		

AVERAGE OF PRICES RECEIVED BY PRODUCERS OF THE UNITED STATES.

Prices of articles quoted below as first of month are averages of reports of county crop reporters, weighted according to relative importance of county and state; fifteenth of month prices are averages of returns from a list of about 7,000 country buyers; state averages are weighted according to their relative importance to obtain the United States averages, prices in same units as in table by states above.

	1908, Aug. 1	1909, Aug. 1	1910, Aug. 1	1911, Aug. 1	1912, Aug. 1	1913, Aug. 1	1914, Aug. 1	1915, Aug. 1	1916, Aug. 1	1916, Sept. 1	1916, Oct. 1	1916, Nov. 1	1916, Dec. 1	1917, Jan. 1	1917, Feb. 1	1917, Mar. 1	1917, Apr. 1	1917, May 1	1917, June 1	1917, July 1	1917, Aug. 1
Wheat	90.4	107.1	98.9	82.7	89.7	77.1	76.5	106.5	107.1	131.2	136.3	158.4	160.3	150.3	164.8	164.4	180.0	245.9	248.5	220.1	228.9
Corn	78.1	75.2	67.2	65.8	79.3	65.4	76.8	78.9	79.4	83.6	82.3	85.0	88.9	90.0	95.8	100.9	113.4	150.6	160.1	164.6	196.6
Oats	49.8	50.0	41.7	40.2	44.3	37.6	36.7	45.4	40.1	43.1	44.5	49.0	52.4	51.4	55.2	56.9	61.5	71.0	69.9	68.9	73.7
Barley	57.1	61.2	54.7	69.3	66.8	50.8	45.1	56.7	59.3	72.9	76.5	83.2	88.2	87.1	92.7	95.9	102.3	120.1	119.3	106.6	114.5
Rye	74.2	78.5	74.4	75.5	77.9	60.7	61.0	89.0	83.4	99.7	104.1	115.3	122.1	118.5	123.5	126.0	135.6	164.1	183.0	177.1	178.1
Buckwheat	80.1	82.9	74.8	76.0	83.6	72.4	81.2	89.2	89.0	86.4	90.4	102.9	112.9	117.2	114.6	124.8	128.3	150.6	183.7	209.2	189.3
Potatoes	83.6	85.1	64.9	136.0	86.5	69.2	87.1	56.3	95.4	109.3	112.0	135.7	146.1	147.3	172.4	240.7	234.7	279.6	274.0	247.9	170.8
Sweet Potatoes							97.5	85.8	87.1	89.9	83.7	80.6	84.8	90.1	95.8	110.7	124.0	141.3	149.4	140.5	129.3
Flaxseed	107.4	137.0	209.7	199.2	175.2	118.6	150.7	144.6	178.1	190.2	199.2	234.7	248.1	250.7	253.7	253.1	266.1	300.6	298.8	278.0	271.6
Hay	9.28	9.74	11.29	14.67	12.98	11.16	11.52	11.02	10.68	10.42	10.36	10.68	11.21	11.49	11.96	12.14	13.05	14.44	15.25	14.56	13.42
Apples								80.4	77.7	83.1	87.6	91.8	91.8	101.1	110.0	123.3	133.0	149.8	157.2	151.1	127.0
Cotton	10.3	11.3	14.3	13.2	12.0	11.5	12.4	8.1	12.6	14.6	15.1	18.0	19.6	17.1	16.8	15.9	18.0	18.9	20.2	24.7	24.3
Butter		22.4	23.8	21.7	23.7	24.9	23.7	24.2	26.1	27.4	29.0	31.1	34.4	34.0	33.5	34.1	33.5	36.1	35.0	33.5	34.0
Eggs		19.2	17.6	15.5	17.4	17.2	18.2	20.7	20.7	23.3	28.1	32.2	38.1	37.7	35.8	33.8	25.9	30.0	31.1	28.3	29.8
Chickens		11.2	12.2	11.2	11.3	12.4	12.8	12.2	13.8	13.9	14.3	14.3	14.2	13.9	14.7	15.5	16.1	17.5	17.5	17.3	17.1

AVERAGE OF PRICES RECEIVED BY PRODUCERS OF THE UNITED STATES

	1910, July 15	1911, July 15	1912, July 15	1913, July 15	1914, July 15	1915, July 15	1916, July 15	1916, Aug. 15	1916, Sept. 15	1916, Oct. 15	1916, Nov. 15	1916, Dec. 15	1917, Jan. 15	1917, Feb. 15	1917, Mar. 15	1917, Apr. 15	1917, May 15	1917, June 15	1917, July 15	
Hogs	8.15	5.92	6.64	7.81	7.72	6.84	8.40	8.61	9.22	8.67	8.74	8.76	9.16	10.33	12.32	13.61	13.72	13.50	13.35	
Beef cattle	4.84	4.28	5.17	5.98	6.38	6.07	6.78	6.51	6.55	6.37	6.44	6.56	6.86	7.36	7.91	8.57	8.70	8.65	8.30	
Veal calves	6.37	5.74	6.33	7.46	7.80	7.87	8.54	8.59	8.77	8.59	8.60	8.79	9.15	9.88	9.94	10.49	10.48	10.60	10.77	
Sheep	5.47	4.19	4.21	4.20	4.75	5.35	6.33	6.22	6.25	6.20	6.41	6.77	7.33	8.17	9.21	9.69	10.15	9.84	9.32	
Lambs	6.71	5.42	5.74	6.05	6.55	7.21	8.16	8.15	8.22	8.02	8.41	8.72	9.59	10.51	11.46	12.03	12.51	12.64	11.19	
Wool	19.0	15.4	18.9	15.9	18.5	24.2	28.6	29.0	28.4	28.7	29.4	30.8	31.8	32.7	36.7	38.4	43.7	49.8	54.3	
Milk (wholesale)	21.0	20.9	22.2	20.7		20.2	20.5	21.2	21.2	22.2	23.0	23.6	23.6	24.0	23.8	24.4	25.2	24.8	24.6	
Milch cows	42.86	42.44	45.41	54.80	59.67	60.31	62.04	61.32	61.41	62.19	62.67	63.18	63.92	65.93	68.46	72.09	72.78	72.87	72.81	
Horses	148	139	142	143	137	134	133	131	131	130	129	129	129	131	133	136	138	137	135	
Cabbage	2.27	2.93	2.29	2.64	2.66	1.95	2.15	2.26	2.17	2.40	2.61	3.04	3.05	5.65	6.77	7.61	7.53	5.10	3.23	
Onions	1.04	1.22	1.14	1.02	1.70	.93	1.47	1.34	1.23	1.31	1.54	1.76	2.08	3.58	4.76	4.96	3.98	3.08	2.01	
Beans	2.34	2.23	2.47	2.22	2.22	2.75	5.09	4.59	4.60	4.47	5.53	5.77	5.71	6.07	6.49	7.37	8.94	8.98	8.07	
Hay—																				
Timothy						13.06	13.43	12.97	11.74	11.57	11.54	12.03	12.29	12.61	12.91	13.20	14.26	15.31	15.76	14.68
Clover						11.85	11.65	10.84	9.93	10.01	10.08	10.46	10.86	11.38	11.65	11.90	13.06	13.94	14.22	12.95
Alfalfa						8.65	8.28	9.87	9.80	10.06	10.25	11.37	12.31	12.79	13.63	14.68	17.68	17.92	16.77	14.13
Timothy seed		5.48	5.96	1.94	2.32	2.57	3.08	2.36	2.22	2.27	2.25	2.31	2.44	2.46	2.70	2.76	3.09	3.09	3.04	
Clover seed	7.17	8.83	10.64	9.78	8.12	7.96	9.15	9.12	8.65	8.54	9.20	9.40	9.60	9.87	10.32	10.41	10.40	10.29	10.50	
Alfalfa seed			8.32	8.20	6.92	8.51	10.30	9.33	9.27	8.61	8.30	8.56	7.97	7.75	8.53	9.03	8.85	8.61	8.71	
Cotton seed		22.70	19.04	21.37	22.78	20.05	36.06	35.22	41.13	47.19	55.82	56.35	52.53	51.43	53.18	55.94	55.61	57.19	56.90	
Broom corn	180	68	85	57	88	79	103	120	129	168	173	172	184	201	212	227	252	223	194	
Cowpeas							1.35	1.41	1.42	1.48	1.62	1.77	1.92	2.10	2.32	2.53	2.93	3.09	3.03	
Kafir corn							0.63	.72	.84	.81	1.02	1.02	1.19	1.29	1.47	1.52	1.88	2.06	2.14	
Bran	25.22	25.80	28.41	24.65	26.36	27.47	25.81	26.53	27.50	28.48	31.54	32.49	32.76	34.87	38.33	42.07	44.19	40.83	40.40	
Cottonseed meal	32.38	31.17	31.82	31.56	32.62	31.36	34.93	35.05	36.17	37.80	41.52	42.96	42.95	43.33	43.67	44.73	45.62	45.14	46.45	
Peanuts	5.2	5.0	4.9	5.1	5.2	4.7	4.6	4.6	4.4	4.4	4.4	4.7	4.9	5.3	5.5	6.2	7.2	7.7	7.6	
Hops		25.8	28.9	14.8	14.7	10.5	10.1		16.4	21.0	21.5	18.2	11.8							
Cottonseed hulls						9.05	15.43	14.90	14.14	14.41	17.28	17.70	17.93	18.49	18.39	19.09	19.65	19.46	19.72	
Peaches		1.51	1.12	1.30	1.20	1.00	1.09	1.15	1.18	1.12								1.70	1.45	

Bitter Pit—It's Cause and Control

[Continued from August number]

The control of bitter pit in the fruit, both while growing on the tree and in oversea shipments, was the final object of this investigation, and a study of the cause was a necessary preliminary. It has been proved experimentally that when fruit is picked on the green side or just when it is beginning to reach the ripening stage, and kept in cold storage at a temperature of 30-32 degrees Fahrenheit, the development of bitter pit is retarded and the ripening process arrested. From the very nature of the disease it is hardly possible to prevent it altogether while the fruit is still growing on the tree, but it has been found practicable to reduce it to such an extent that the loss is comparatively trifling.

The results of experiments in different states enable us to draw the conclusion that light pruning is associated with a small amount of pit, and severe pruning with a large amount. A special pruning experiment, extending over five years, with Cleopatra trees which were nine years old to start with, and had been so badly affected with pit that the orchardist had cut most of them down,

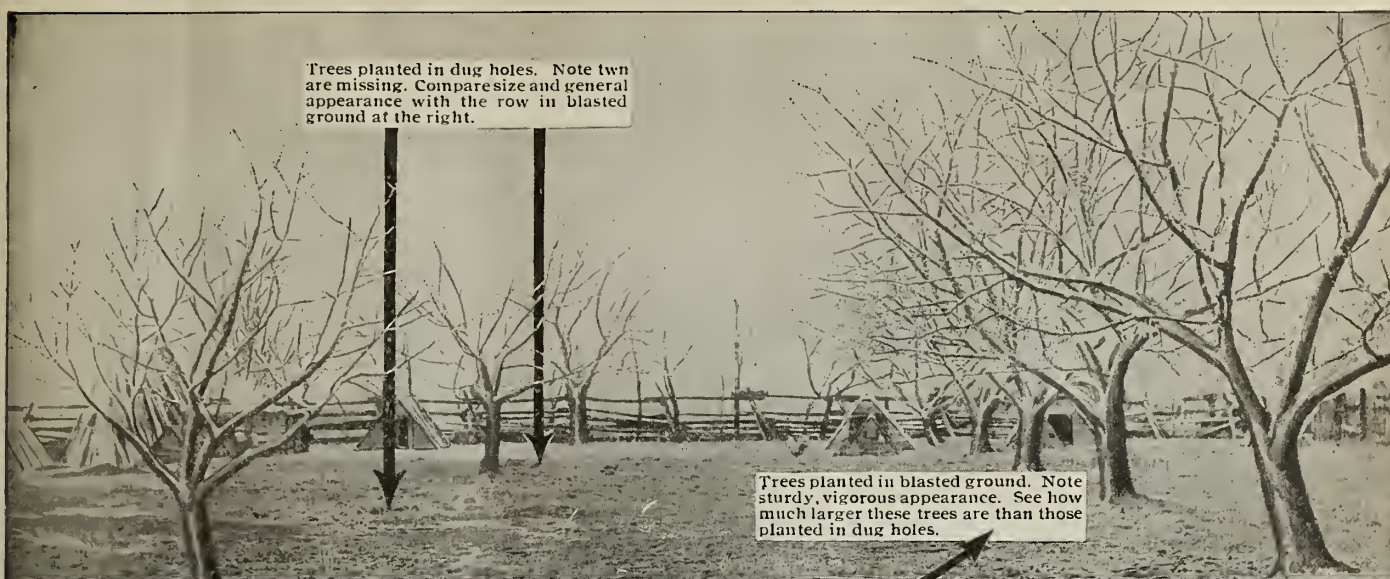
shows the effect of pruning very decidedly. The leader and lightly-pruned trees had the largest crops with from 4 to 6 per cent pitted, while the severely-pruned trees had 22 per cent pitted.

Where irrigation is practiced, a proper use of the water will help to reduce pit. An experiment was conducted with a susceptible variety at the susceptible age of five years. Where the trees were lightly watered throughout the season there was 14 per cent of pit, while in trees with a medium supply of water at first but a heavy watering toward the end of the period, pit was much worse. The heavily-watered trees showed over three times the amount of pit, or 90 per cent.

The application of sulphate of iron, in several instances, gave very promising results, and it is worthy of being tried on a large scale, as well as for a sufficient number of seasons. Experiments on a limited scale show that the yield was increased and the amount of pit considerably reduced when sulphate of iron was applied at the rate of one to two pounds per tree.

There are two series of experiments which were initiated at the commencement of this investigation and which may be found to help considerably in reducing the pit, but from their very nature require a considerable time to yield reliable results. I refer to the experiments with stocks and the pruning experiments, combined with thinning of the fruits. The stock experiments are being conducted at the School of Horticulture, Burnley, and the trees are enclosed in a bird-proof screen, so that the fruit is not interfered with by birds nor small animals. The trees are now coming into bearing, being five years old from planting, and with the crop carefully gathered and the percentage of pit determined for at least five seasons, the effect of the stock on the development of pit will be demonstrated. Through the courtesy of the director of the Royal Gardens, Kew, England, I have received a supply of pips and cuttings of the Wild Crab Apple of Britain, and these will also be tested as stocks with different varieties of marketable apples. There is a possibility that the stock might affect the scion in such a way as to render the

Continued on page 26



Trees planted in dug holes. Note two are missing. Compare size and general appearance with the row in blasted ground at the right.

Trees planted in blasted ground. Note sturdy, vigorous appearance. See how much larger these trees are than those planted in dug holes.

Trees set in blasted holes grow faster and yield better

EIGHTEEN years ago George W. Brown blasted the beds for ninety out of 100 apple trees that he planted. The trees set in dug-holes average 18 feet high, with a spread of 16 feet and a trunk girth of 27 inches. The other trees, in blasted beds, average 25 feet high, more than 25 feet in spread, and have a trunk girth of 42 inches. Plant *your* fruit trees in beds blasted with

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STUMPING — AGRICULTURAL

and *you* will find, as experiment stations have found, that "trees planted in blasted holes develop deeper and stronger root systems than trees planted in spade-dug holes," and will bear earlier and yield larger crops.

The Giant Farm Powders are made especially to suit *western* farm conditions. They pulverize the soil instead of packing it. They are used by hundreds of fruit growers for planting and deep-tilling their orchards. Ask

your dealer for one of the Giant Farm Powders — Giant Stumping Powder or Eureka Stumping Powder, and for other Giant blasting supplies. Be sure to get the genuine, bearing the Giant brand. If your dealer has only ordinary dynamites, we shall see that you are supplied.

Book, "Better Orchard Tillage," FREE

Every fruit grower will find valuable information in our illustrated book, "Better Orchard Tillage." It contains a complete analysis of how and why blasting soils increases growth and yields. It also tells how to do the blasting. We'll send you a copy free—mark and mail the coupon. Other books, on stump blasting, boulder blasting, subsoiling and ditching, also free on request.

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WHEN WRITING ADVERTISERS MENTION BETTER FRUIT



Trunk of tree planted in blasted bed. Hardpan broken up, giving roots ample room for development.



Trunk of tree planted in same soil, without blasting. Note how hardpan has forced roots to surface and observe effect of lack of food.

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packed. Second grade fruit should not go into barrels or boxes. If it cannot be marketed in bulk in nearby consuming centers, then it should be worked up into by-products along with the culls.

There has been a gratifying improvement in apple marketing the past two or three years. Western apples are boxed to strictly honest standards by the great co-operative growers' organizations in Washington, Oregon, California, Idaho and Colorado. The Eastern barrel apple has also been wonderfully improved in New York and other states. Because apples are honestly packed and give the best possible value for the money, there is an increase in the consumer demand. Retail merchants who were formerly almost afraid to buy apples in barrels, because they were not sure of getting marketable values for their money, are now buying freely and in confidence. This good work makes it possible for the government to go further and encourage the use of apples as a war-time food measure.

Because the bulk of the crop will be picked by volunteer workers this year, and put into common storage until the grower can find time to grade and pack, there will be an opportunity to give closer personal attention to the grading and packing than might be the case if the crop were handled as in peace times. For the grower who desires instructions in apple packing the Department of Agriculture at Washington has information in bulletin form. These bulletins can be secured free by writing to the department. Growers will do well to obtain a few copies for their pickers and packers.

Make This Year's Apple Crop Fit the Market

Third Article in Growers' Campaign to Meet the Apple Situation

UNCLE SAM takes the keenest interest in this year's apple crop. For the fruit must be used to help save wheat and meats for our allies. The Food Administration is planning a consumer campaign of publicity throughout the country.

This year's apple crop calls for intelligent handling. The latest government reports indicate a crop of about 190,000,000 bushels. That is a little below normal. Good prices are assured for all honestly packed first quality apples and also for honestly packed selected second grades, which government experts say can be put into storage. When the crop is big it does not pay to store second grades, but this year, despite the fact that we cannot ship our usual 2,000,000 barrels of apples abroad, because shipping space is precious, we should be able to get fair prices for all good apples at home.

Careless packing of poor quality fruit has always been one of the chief causes of market instability and unsatisfactory prices to the growers. This year the whole apple industry is co-operating to remove this market handicap. There

has never been an apple year such as this one is going to be. Growers have never been able to get together and engage and finance a national educational campaign among consumers to increase apple consumption. This year the situation makes it necessary for the United States government, through the Food Administration, to conduct a consumer's campaign of publicity on behalf of the apple. This campaign will begin while the crop is being sent to market and will probably continue till the last apple is eaten up late next spring. So the grower has three great incentives for grading, packing and storing this crop with especial care. (1) It is a good crop and calls for care. (2) The government will encourage apple eating and apple storage and will discourage apple speculation that raises the price abnormally. (3) We must eat up at home more than two million barrels of apples which would ordinarily be exported.

To get the best of the crop to the market in prime condition it must be picked carefully at the time of maturity and promptly cooled in temporary storage, and then skillfully graded and

MYERS GLASS SEAT PUMPS

When you are ready for a new pump, look deeper than the paint, for paint soon wears off and has nothing whatever to do with pumping water.

Ask your dealer to show you a MYERS PUMP with Cog Gear Handle and Non-Corrosive Glass Valve Seat and have him explain why it pumps 33 1/3% easier than the ordinary kind, and why Myers Leathers stay soft and pliable and last longer than others. He will be glad to tell you about these and the many other Myers features that make Myers Pumps better.

Ask him, or write us. Attractive booklets on request.

F.E. MYERS & BRO.
120 ORANGE ST. ASHLAND OHIO



Hudson Super-Six Proves Endurance

A Test That Never Fails to Reveal Every Weakness and Prove Every Strength of a Motor Car

Stock Hudson Super-Six cars are deliberately sent through tests more trying, more destructive, than any the average driver could imagine.

For one hour, a fully equipped phaeton with top and windshield up and carrying five passengers, was sent at top speed. It averaged 70.74 miles an hour and established the best time for such a performance with a stock car. The test, officially observed by the American Automobile Association, was one of the many similar tests to prove endurance.

It was not a preconceived campaign of tests that we set out to make. Each test was thought sufficient in itself. But just as the giant is surprised as he realizes the ease with which he accomplishes each feat that he had felt would try his strength, so the Super-Six has so easily met every test that more trying and abusive trials have been devised.

We were sure that in the 24-hour test a stock chassis would break all previous records. But no one thought it would go 347 miles farther than any other car had ever gone in 24 hours. The Super-Six covered 1819 miles. It broke all records for a traveling machine.

So, too, when a seven-passenger Super-Six set out from San Francisco for New York it was with confidence that it would lower the time of all other transcontinental runs. It did so by 14 hours and 59 minutes. Then because the run had been made so easily and without special planning, the car was turned around and raced back to San Francisco.

In the return trip it also did better than any other automobile had ever done in crossing the continent in either direction. Hudson's round trip required 10 days and 21 hours.

There is hardly any quality of a car that is so important to the buyer as that of endurance. Safety, comfort, reliability, low maintenance cost are all dependent upon endurance.

Every quality of motor car satisfaction is dependent upon power acceleration, speed and endurance. And every Hudson test proves that in these respects there is no car that equals it.

Convincing as the official records are, there is still further proof that no other car has to offer equal advantages. These proofs are furnished by 37,000 Hudson Super-Six owners. They have added their experiences to the official tests.

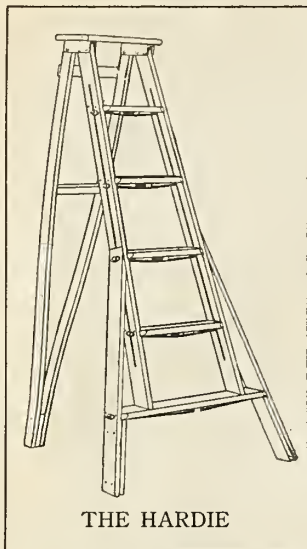
Others Have Increased Their Prices—Not Hudson

Other makers are now announcing price increases which bring the former \$1,200 and \$1,300 cars into the Hudson class. Until present material supplies are exhausted Hudson prices remain unchanged. So you can get for a limited time a Super-Six at a price not influenced by present high material costs. When the present allotment is exhausted then Hudson, too, must go up in price.

There are eight body types. The 7-passenger phaeton sells at \$1,650 at Detroit.

HUDSON MOTOR CAR COMPANY, DETROIT, MICHIGAN

"EVERYWHERE IN THE NORTHWEST"



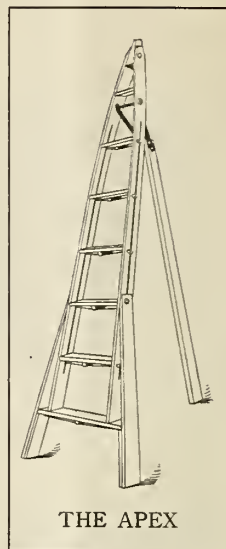
THE HARDIE

You will find an army of orchardists gathering their fruit
crops on

HARDIE Fruit Ladders

These all spruce picking ladders merit your attention. While strong they are light in weight, giving your picker confidence by their strength, while their light weight does not tire him.

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THE APEX

In these days of increasing wages the Hardie Ladders will aid greatly in keeping picking costs at the old figure through giving you a "Bigger Day's Work" from your picker.

Stock Sizes Range from 4 to 14 feet.

Price per foot 40c

THE HARDIE MFG. CO.

49 North Front Street

PORTLAND, OREGON

Not Overprocuction of Apples, But Lack of Distribution

By E. H. Shepard, Editor of Better Fruit

THE subscribers of BETTER FRUIT will recall the article entitled "Not Overproduction of Apples but Lack of Distribution" that appeared in the July edition of BETTER FRUIT, giving the number of cars of apples sold in 1916 in towns of 3,000 to 5,000; the number of towns sold and not sold with a population of 5,000 to 10,000; the number of towns sold and not sold of 10,000 to 20,000; the number of towns sold and not sold of 20,000 to 50,000; the number of towns sold and not sold of 50,000 and over in each state. In addition to this the article contained statistics showing the names of the towns over 3,000 and the population of each in each state in the United States sold during 1916.

In the August edition of BETTER FRUIT we published another article entitled "More Information on Fruit Distribution," giving names of the towns over 3,000 in Minnesota, Louisiana and Ohio that have not been sold. Attention is called to the fact that Ohio has 117 towns of over 3,000 poluation, of which ten have been sold and 107 not sold. In every state in the Union the number of towns of over 3,000 that are sold is comparatively small to the towns of over 3,000 unsold. It must be admitted, of course, that every town in the United States of over 3,000 population cannot be sold. The states that produce apples in large quantities do not afford so

great an opportunity as the states where apples are not grown commercially. It must be borne in mind, of course, that some Northwestern States, like Minnesota, the Dakotas and Wyoming; the Southwestern States, like Texas and Arizona, do not grow apples in a commercial way. In fact, very few apples are grown in the states mentioned. The Southeastern States are small producers of apples, although a few are grown in the mountainous regions of Georgia, North Carolina, some in Tennessee and Kentucky, but comparatively none are grown in South Carolina, Alabama, Florida, Louisiana and Mississippi, consequently all of these states should be large purchasers of apples. Towns under 3,000 population deserve special attention. The editor has taken the list of towns reported sold during 1916 through the Fruit Growers' Agency and of the Northwestern Fruit Exchange from the time they commenced doing business up to December 31, 1916, giving the name of each town in each state under 3,000 that has been sold, with the population. A careful study of the list will not only give some wonderful surprises but some pretty big "jolts" in showing the possibilities of the small towns. The population as stated is taken from the Produce Reporter Credit Book, 1917, copyrighted, and in some cases are probably approximate esti-

mates. The surprising feature in looking over the population of towns sold is that even towns of only 200 population have been sold, a greater number of 300 to 400 have been sold and a large number of towns sold around 1,000 to 2,000. One is led to believe that a town of this population is an excellent prospect for carlot shipments. The natural inference would be that a town of 300 to 400 would not buy carlots, but it should be borne in mind that such towns sometimes have a very large business tributary to them containing some very large general merchandise stores, handling fruits such as oranges, bananas and apples.

There are over 33,000 towns in the United States under 3,000 population, of which only about 311 have been sold. I desire to impress upon everybody connected with the fruit industry the importance of selling Northwestern apples direct. The reasons for direct business are twofold. When a small or medium town is sold direct instead of through some big city, two extra cartages are saved and one extra freight bill and one intermediate profit, which may vary all the way from 20 to 40 cents. Three extra handlings are avoided, two cartages and one railway shipment, which means the apples can be delivered to the consumer in better condition. Another important reason is

that supplying towns under 3,000 direct the pressure will be relieved in the big cities, consequently a better level of prices maintained, which would also be a factor in maintaining a higher level of prices in the smaller cities. The average individual does not realize what it means to crowd the market. I will cite as an illustration the report on Bartlett pears during one week in New York City, as given in the Monthly Bulletin published by the State Commissioner of Horticulture, Sacramento, in an article, "The Scientific Distribution of Fruit," by Harris Weinstock, Director State Commission Market, San Francisco, probably for the year 1916:

CHART SHOWING MOVEMENT OF BARTLETT PEARS FOR ONE WEEK IN THE CITY OF NEW YORK

	Date	Cars	Boxes	Av'ge
Monday	July 24	52	27,100	\$2.04
Tuesday	July 25	27	10,045	2.21
Wednesday	July 26	23	11,765	2.48
Thursday	July 27	28	14,550	2.28
Friday	July 28	31	16,195	2.57

It will be seen the price varied largely in accordance with the quantity offered. With 27,100 boxes on the market the price was \$2.04, evidently an oversupply, breaking the market, because on Wednesday, with 11,765 boxes, the average price was \$2.48, or 44 cents difference; 44 cents less than when the market was crowded. Undoubtedly similar differences will prevail in any market when glutted with an oversupply of apples just the same as any other kind of fruit or any other commodity. This of course would apply more to fruit because it is perishable, than to a non-perishable product.

I hope that every fruit grower, every director in any marketing concern and all of the salesmen and salesmen of the Northwest will read the July and August editions of BETTER FRUIT, as well as the others that will follow, believing they can get some valuable information and statistics, which if taken advantage of will be very helpful in spreading out the crop of the Northwest and selling a greater number of towns that have not been sold, in this way maintaining a much higher level of prices. I believe it is the duty of everyone connected with the fruit industry to make the fullest effort possible to market the crop in the most effective way, so as to get sufficiently satisfactory remunerative prices for growing apples, because fruit growers must receive better prices for their apples than they have been receiving the last few years to pay them a satisfactory profit for their labor and on the capital invested. In fact we need better prices than we have been getting in order to make a decent living. Every state where apples are not grown extensively should be combed thoroughly by a well organized sales force. There is no reason why apple shippers and selling concerns should not have just as thorough a distribution as manufacturers or jobbers of any other line of business. If a sufficient number of salesmen are put on the job to cover the territory where business can be secured in a thorough manner and a business-like way, the crop will be widely distributed, no mar-

Continued on page 17



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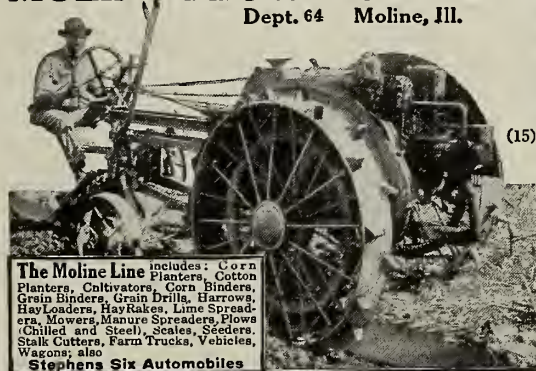
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HOOD RIVER, OREGON

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More Cars for Apples.—The orange crop of Southern California, on account of drouth, has suffered very severely, and orange growers are entitled to the sympathy of the fruit growers throughout the country. It is stated the orange crop will be about 50 per cent of a normal crop. The average crop of oranges is 50,000 cars per year, consequently there will be 25,000 cars less of oranges to be shipped this year than ordinarily. As the total crop of apples of the Northwest will not exceed 20,000 cars there is every reason why urgent steps should be taken to have these fruit-express cars placed, as far as necessary, at the service of the Northwestern apple growers. Mr. J. Curtis Robinson, chairman of the Transportation and Storage Committee of the Fruit Growers' Agency, has taken this matter very ably in hand and is conferring with the committee on car service of the National Board of Defense, the Agricultural Department of Transportation Service, and through Senator Wesley L. Jones the matter will be called to the attention of the president and secretary of agriculture.


Hogs.—Three or four years ago the editor of BETTER FRUIT ascertained, through information compiled by the Union Meat Company, that immense quantities of hogs were being shipped from Kansas. Prices of hogs locally, so long as this condition continued, was the price of hogs in Kansas, plus freight to the Northwest. The Union Meat Company carried on a propaganda educational campaign for the purpose of stimulating the raising of hogs in the Northwest with splendid results. The increased quantity of hogs has created an extra income for the farmer and fruit grower. The regrettable part of the hog situation at the present time is that, on account of the extremely high prices of hogs (20 cents last quotation),

a great many farmers and fruit growers cannot resist the temptation and are even selling their brood sows; the consequence will be the supply of hogs in the Northwest will go down, so it seems wise not only to suggest but to advise every farmer and fruit grower in the Northwest, who can possibly take care of a few hogs, to get a few brood sows and go into the business, so far as he can without interfering with other farming and orchard work. This can easily be done by fruit growers, as a great many fruit growers sow alfalfa in the orchard for cover crops, for the reason cover crops are found very beneficial in producing the necessary supply of humus and nitrogen at practically no cost. Alfalfa makes excellent feed for hogs. Through the campaign and propaganda put up by the O. W. R. R. & N. Co. a great deal of corn has been produced in the Northwest. It has been ascertained that corn can be grown successfully in many sections of the Northwest, consequently this suggestion in connection with hogs comes in appropriate for the reason that corn can be grown successfully, and corn is one of the best feeds in the world for hogs.

The Washington State Fair will be held September 17 to 22 at North Yakima, the center of fruit growing in the State of Washington. The shipments from this valley amount to many thousands of cars a year, making the horticultural department of the Washington Fair a most prominent feature. The exhibits of fruit are always extensive and at the same time magnificent. Fruit growers attend the Washington State Fair in large numbers, affording every fruit grower an opportunity by personal contact with other fruit growers to learn many new methods and improved ways of producing and handling his crop. Yakima people are very hospitable and the fair is made a great annual event, assuring everybody in attendance a splendid time.

Farm Implements.—Farm implements, which naturally includes orchard implements as well, to a greater or less extent, have been estimated to increase the farmer's productive ability eighty times. This is a surprising statement and one that very few have any conception of without having given the matter thought and study. A shortage of implements among the farmers or fruit growers naturally will affect the food shortage, and as the farming industry of the country is the basic structure of the life of the United States, everything should be done in the government propaganda being carried on to see that sufficient manufacturers can turn out sufficient implements for operating the farms. It would seem that the implement manufacturers are entitled to priority, because no matter how much ammunition we have if we do not feed the army and the nation we cannot succeed in ending successfully at an early date the immense war that the United States is engaged in at the present time.

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Distribution of Apples.—This issue contains an article by the editor on the "Distribution and Sale of the Apple Crop," with some statistics, showing all of the small towns in the United States under 3,000 population that have been sold direct in carloads. The surprising part of this investigation is that many towns under 1,000, some as low as 400 and even as low as 200, have been sold apples in carload lots. When you take into consideration that there are over 30,000 small towns in the United States, of which only about 300 have been sold, it seems reasonable to assume that if the Northwestern selling concerns would put salesmen in the states where the opportunity is best, covering the country thoroughly, that a great many more towns could be sold direct. By increasing distribution and increasing consumption a higher level of prices will be maintained. The editor, however, wishes to state distinctly in connection with the articles that have appeared in BETTER FRUIT and the editorials that it is a fact well known by apple shippers and the editor himself, that there are many small towns near jobbing centers which are supplied regularly and probably more satisfactorily in small lots than they could be supplied in carloads. But the editor wishes to impress upon the apple growers of the Northwest and those interested in the industry that wherever small towns are not properly supplied by the jobbing trade or are too remote to be supplied to the best advantage where a carlot can be sold direct that it is the advisable policy.

Government Statistics of the Northwestern Crop.—The following table gives the government estimate of August 1st of the total crop in bushels and the estimate of the commercial crop. By that is meant the crop that is packed and shipped in barrels or boxes. Converted into carloads, standard, 600 boxes to a car, gives Montana 695 cars, Colorado 3,350 cars, New Mexico 645 cars, Utah 705 cars, Idaho 1,190 cars, Washington 9,925 cars, Oregon 1,940 cars, California 5,980 cars, making a total estimate of the above box-apple states of 24,430 cars:

INDICATED YIELD—GOVERNMENT REPORTS

Thousands (000) omitted.			
August 1, 1917		Final 1916	
Total Bushels	Commercial Barrels	Total Bushels	Commercial Barrels
Montana	925	139	768
Colorado	4,013	670	2,205
New Mexico ..	648	129	357
Arizona	129	16	138
Utah	846	141	99
Nevada	216	2	48
Idaho	2,025	238	441
Washington ..	8,505	1,985	9,675
Oregon	3,329	388	3,855
California ...	5,515	1,196	5,754
Total	26,151	4,904	23,340
			4,259

This is somewhat at variance with the estimates of those who have investigated and are fairly well posted. Washington is credited, on July 1st, with 16,955 cars, Oregon 2,500 cars, Idaho 2,000 cars, Montana 500 cars, making an estimate for the four Northwestern States—Washington, Idaho, Oregon and Montana—of 21,955 cars. A more conservative estimate is given in the August edition of BETTER FRUIT, and conditions have not changed much in that time, stating the Northwest would probably have somewhere in the neighborhood of 18,000 cars. However, it must be admitted that many things may happen, from pests or disease, to reduce this quantity of first-class commercial shipping apples between now and harvest time.

The International Apple Shippers' Association met in New York City August 15-16-17. A few Northwestern managers present showed much interest in the proceedings and the good work accomplished. One of the important matters before the convention is an educational campaign by the members of the International Apple Shippers' Association to increase the popularity and consumption of apples. Plans for the campaign were worked out quite thoroughly at the convention, which will co-operate with Mr. Herbert Hoover, the government food administrator, and good results, a greater consumption of apples and a better demand is hoped for and expected.

The Oregon State Fair will be held at Salem, September 24 to 29, inclusive. Horticulture is one of the main industries of the state, consequently fruit growers should endeavor to make this department a success to the fullest possible extent with exhibits—the best they can show in fresh fruits, also canned and evaporated. Fruit growers should attend this fair for its educational value; to meet with the neigh-

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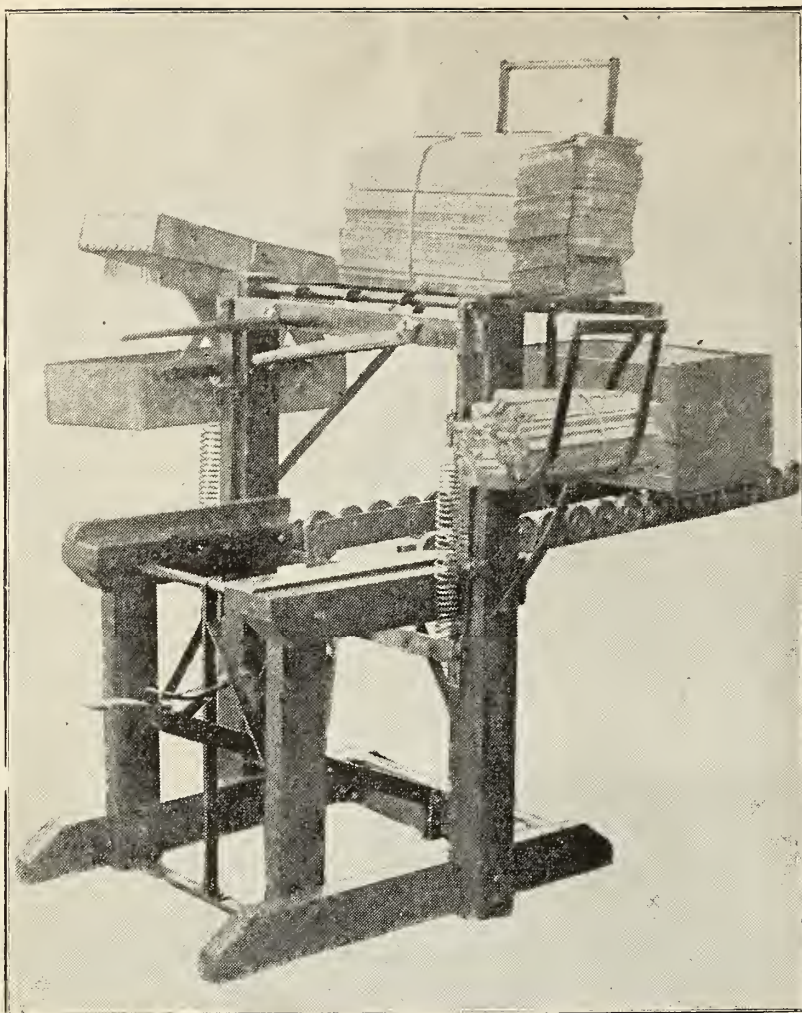
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bors and discuss their problems, and to learn what the other fellow is doing and how he does it. Nearly every manufacturer of equipment for the fruit grower and farmer doing business in this state will have an exhibit of machinery that will be well worth seeing. Fruit growers and farmers, in order to get the fullest amount possible out of their crop, must be able to grow it and harvest it at a minimum expense. The Oregon State Fair provides camping ground and facilities for those who desire to camp out, which enables one to make a visit to the Oregon State Fair at very small expense.

Clearing Land.—There is a critical shortage of all food supplies, largely due to the war, which will continue

even after the war, as undoubtedly it will take the European countries several years to get back to their natural producing capacity. Consequently the government is urging increased productivity in every way possible. It is doubtful if the present amount of land under cultivation can be increased sufficiently in yield, so it seems advisable to suggest to every fruit grower and farmer that if he has any uncleared land that it would be a paying proposition to clear it this winter so as to get it producing at the earliest possible moment. There is no question but what it will pay well. Blasting powder is used extensively for this purpose. There are many different blasting powders, some being especially adapted to clearing land. The blasting powder

manufacturers are endeavoring to assist the farmer who has land to clear with instructive booklets and circulars, which are very helpful. These can be obtained free upon request.

Walnuts.—The increase in price on all food commodities is undoubtedly due to the increased demand and the supply being somewhat short. The increased demand is probably due to the fact that so many people ordinarily engaged in producing foodstuffs are either at the front or making ammunition. Inasmuch as it will be some time after the war is over,—and no one knows when that will be,—before the warring nations get back to productiveness, every fruit grower and farmer should give special attention to increasing his crops in producing as much food as possible, particularly of non-perishable nature. Nuts are considered very nutritious and at the same time an excellent food, consequently it seems the following suggestion is well worthy of consideration. Every fruit grower and farmer should plant a few walnut trees to help create food for the family, and whatever surplus a farmer can produce he can sell to excellent advantage, as walnuts have been remunerative for several years in the past.

The Monthly Crop Report of August 1st evidently believes that apples have increased in value, as indicated by the estimates under "Important Products" of July 15th, giving the following figures: Apples, per bushel, estimated value July 15, 1916, 86½¢; July, 1917, \$1.25; apples, per barrel, 1916, \$2.60; 1917, \$3.14.



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PRICE \$2.00

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Station A

Portland, Oregon

Not Overproduction, Etc.

Continued from page 13

kets will be glutted, and from that time on there will be no more talk about overproduction or low prices. There are many towns properly taken care of by the jobbers in their territory which are regularly supplied. It is much better where a town cannot buy by the carload and sell it out in a reasonably short time for such towns to purchase from the jobbers in the nearest wholesale territory as required, keeping fresh stock on hand.

NUMBER OF TOWNS IN EACH STATE, HAVING A POPULATION OF LESS THAN 3,000, THAT HAVE BEEN SOLD APPLES IN CARLOTS DIRECT

California	Pop.	Kansas	Pop.
Dunsmuir	1,719	Ness City	950
Montague	600	Oakley	750
Weed		Olpe	
Colorado		Osborne	1,606
Haxtum	520	Phillipsburg	1,285
La Mar	2,200	Protection	800
Brush	1,500	Scott City	900
Fort Morgan		Sterling	2,013
Iowa		Wakefield	725
Cumberland	552	Long Island	200
Dike	286	McDonald	
Malvern	1,154	Norton	1,700
Strawberry Pnt.	1,052	Norfolk	
Wolcott	416	Simpson	400
Idaho		St. Francis	675
American Falls	1,250	Traer	
Arimo		Vulcan	
Arco	500	Whitewater	585
Blackfoot	3,000	Woodruff	
Buhl	1,000	Louisiana	
Emmett	1,400	De Redder	2,000
Genesee	1,200	Maine	
Gooding	1,600	Ft. Fairfield	1,620
Hazelton		Montana	
Minidoka	150	Bainville	425
Middleton		Baker	400
McCammon	500	Big Sandy	178
Montpelier	2,500	Bonner	
Malad	1,200	Bryan	
Payette	1,948	Buffalo	
Purcell		Cascade	600
Parma	750	Conrad	1,200
Picabo		Cutbank	500
Rupert	1,000	Fairview	200
Rexburg	1,600	Gilford	
St. Anthony	2,000	Glendive	1,725
Smiths Ferry		Glasgow	1,275
Shoshone	1,500	Hinsdale	
Weiser	3,500	Homestead	
Wendell	850	Medicine Lake	350
Kansas		Plentywood	1,200
Almena	800	Poplar	230
Arlington	650	Sidney	600
Altamont	610	Westby	
Anthony	2,450	Whitehall	450
Brownwell	300	Winifred	
Clinton	700	Wold Point	
Condon		Brady	150
Eureka	2,412	Bridger	650
Ellsworth		Belgrade	875
Wainfield	350	Bowman	
Gorham	175	Browning	225
Herndon	350	Chinook	1,200
Hoisington	1,414	Coffee Creek	
Hoxie	430	Deer Lodge	1,650
Jamestown	900	Dillon	1,835
Kingsley	1,700	Drummond	
Luray	350	Forsythe	1,100
Marion	1,802	Franklin	
Morganville	500	Geraldine	
Morgan	700	Laurel	1,100

Montana	Pop.	North Dakota	Pop.	North Dakota	Pop.	Minnesota	Pop.
Malta	800	Hamlet		Ft. Clark		Breckenridge	2,000
Miles City		Hampden	425	Goodrich	750	Dilworth	800
Norris	250	Keane		Highmore		Glenwood	2,300
Pony	437	Leeds	1,025	Hazleton		Graceville	1,100
Rosebud		Lignite	350	Hallinger		Henning	1,000
Stanford	450	Lisbon	2,000	Hebron	800	North Redwood	
Sweetwater		Medina	500	Kildeer		Redwood Falls	1,806
Townsend	800	Noonan	600	Kenmore	2,000	Wadena	
White Fish	2,000	Plaza	900	Langdon	1,400	Avon	
Wolfcreek		Portal		Lakota	1,250	Black Duck	1,424
Missouri		Powers Lake	550	Leith		Brewster	300
Hall	700	Rock Lake		New Salem	1,025	Cass Lake	1,300
North Dakota		Rugby	2,000	Newberg	375	Dalton	
Alexander		Stanley	700	Oakes	1,875	Detroit	2,500
Antler	700	Tioga	625	Paishali		Eagle Bend	600
Anamoose	750	Towner	1,125	Ragan		Horton	
Arnegard		White Earth	350	St. Thomas	650	Lake Park	1,000
Arthur	225	Wildrice	100	Sterling	200	Minnesota Transfer	
Beach	1,450	Wolford	400	Starkweather	475	Morris	2,003
Berthold	700	New Rockford	1,800	Sheldon	500	Red Lake Falls	1,797
Bowbells	875	Bowman		Turtle Lake	800	Twin Valley	750
Carrington	1,500	Braddock	400	Werner		Raymond	450
Charbonneau		Chamberlain		Wahpeton	2,425	Wheaton	1,500
Crosby	850	Cando	1,500	West Hope	1,100	Pennsylvania	
Drake	550	Edison		York	475	Biglerville	350
Finley	700	Flasher	450			De Bois	

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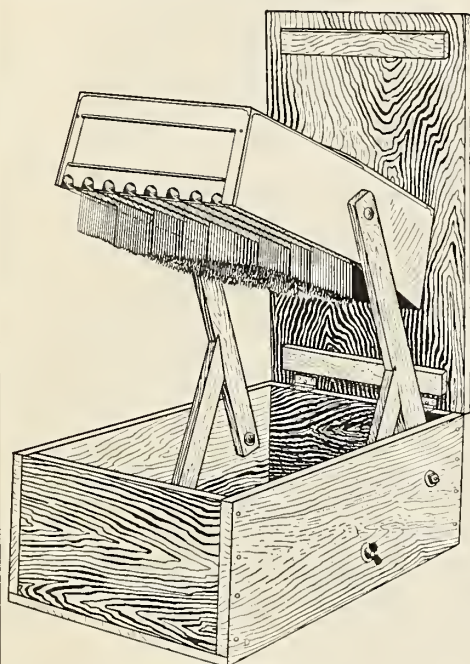
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Nebraska	Pop.	South Dakota	Pop.
Danbury	550	Turton	350
Gothenberg	1,700	Timber Lake	300
Giltner	550	Vermillion	2,147
Gering	800	Webster	1,775
Lester	300	White Lake	950
Moorefield	300	Wolsey	700
Riverton	450		
Scottsbluff	1,746	Texas	
Upland	650	Llano	1,600
Watertown		Bowie	2,500
		Cisco	2,410
Oregon		Comanche	2,070
Enterprise	1,242	Lockdale	
Bend	2,500	Lockhart	2,945
Klamath Falls	2,325	Mexia	2,393
North Bend	1,650	Plainview	3,000
Niagara		Rockdale	2,515
		San Augustine	1,250
Oklahoma		Dalhart	
Clinton	2,781	Waurika	
Ojima			
Purcell	2,552	Washington	
Woodward	2,018	Sumner	892
Camanche	1,410	Krupp	250
Herrington			
		Wisconsin	
South Dakota		Naron	1,074
Browning		Boscobel	1,900
Gettysburg	1,100	Osceola	925
Kodoka	350	Broadhead	1,875
Claremont	375		
Corona	350	Wyoming	
Eureka	1,000	Gillette	448
Groton	1,275	Hanna	1,500
Gregory	1,216	Pine Bluffs	246
Hill City	250	Upton	244
Java		Basin	763
Lemmon	1,255	Cody	1,132
Mott		Douglas	2,246
Parker	1,450	Guernsey	274
		Thermopolis	1,524



The Hardie Nail Stripper

Made of heavily coated tin, this stripper is built for hard continuous service.

Its use means a cutting of packing house costs.

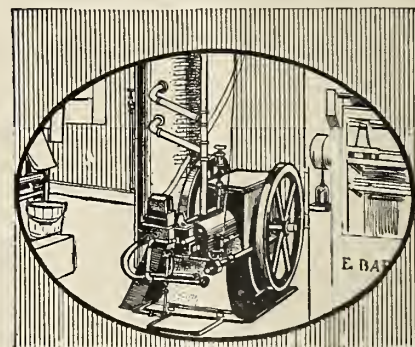
It is but one of many practical orchard and packing house devices described in our free circular. Send for it.

The Hardie Mfg. Co.

49 North Front Street
Portland, Oregon

23-Year Engine Record

Witte's new catalog, the finest by the way, in the whole engine business of America, shows his complete up-to-date line of styles and sizes, from 2 to 22 horsepower—stationary, skidded, portable and special saw-rigs, and quotes



WITTE Engine used for more than 23 years by McBeth & Dallas, Garden City, Kan.

his present remarkably low prices. All sold under a binding five-year guarantee, and subject to full 90 days' free trial. To get a new catalog and full information, with latest prices, write Ed H. Witte, Witte Engine Works, 1880 Oakland Ave., Kansas City, Mo.—Adv.

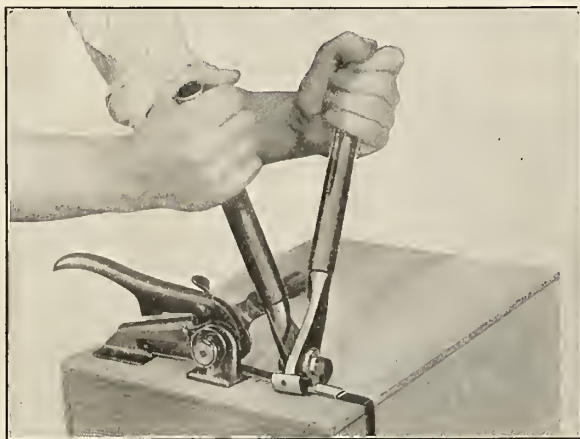
Boiling Points Real Test of Gasoline, Says Expert

"To start easily, accelerate quickly and smoothly, and have plenty of dependable power with economical mileage, you must use a gasoline having its boiling points in a continuous, unbroken, gradually rising series," is a statement made recently by a prominent Standard Oil man.

"Boiling points are what determine good gasoline, not gravity. And it is well to bear in mind that mixtures or blends cannot have the proper continuous chain of boiling points. There are so many connecting fractions in the chain that no mixture could be made to contain even approximately the correct number or character of links. Straight-distilled refinery gasoline is the only motor-fuel containing the correct chain of boiling points."—Adv.



Steel Box Strapping



Used in connection with metal seals consists of encircling a package with a metal strap, drawing the strap very tight and interlocking the overlapping strap-ends within a metal sleeve (**SIGNODE**) in such a manner that the joint has a greater tensile strength than the strap itself. Nails, rivets and buckles, with their attendant objections, are entirely eliminated.

Write for
Catalog

Acme Strapping packed in bbls. of about 500 lbs. or larger pkgs.
Metal Seals packed in cartons containing 2,000-2,500 seals.

ACME STEEL GOODS CO. MFRS.

Factory: 2840 Archer Ave., Chicago

311 California St., San Francisco

THE STATE AND NATION

UNITE IN SUPPORT OF THE

Oregon Agricultural College

CORVALLIS, OREGON

Where trained specialists with modern laboratories and adequate equipment give instruction leading to collegiate degrees in the following schools:

AGRICULTURE, with fifteen departments.

COMMERCE, with four departments.

ENGINEERING, with six departments, including Civil, Electrical, Highway, Industrial Arts, Irrigation and Mechanical Engineering.

FORESTRY, including Logging Engineering.

HOME ECONOMICS, with four major departments, including training in the Practice House.

MINING, with three departments, including Chemical Engineering.

PHARMACY.

INDUSTRIAL EDUCATION a specialty.

VOCATIONAL COURSES offered in all Schools.

THE SCHOOL OF MUSIC offers instruction in the principal departments of vocal and instrumental music.

THE MILITARY DEPARTMENT, established in 1872, enrolled 1085 cadets in 1916-17, and won recommendation for O. A. C. from the Western Department of the U. S. War Department as one of the fifteen "distinguished institutions" of higher learning in the country. All cadets will be furnished complete uniforms by the U. S. Government, and the junior and senior cadets, enrolled in the R. O. T. C., will be given commutation for subsistence, as well as all transportation and subsistence at the six weeks' Summer Camp.

Registration Begins October 8, 1917

INFORMATION ON REQUEST.

ADDRESS REGISTRAR, OREGON AGRICULTURAL COLLEGE, CORVALLIS, OREGON

Pollination by Bees

By A. Bowman

THE necessity of bees in orchards as an aid to pollination has passed the experimental stage, and this phase of the question permits of no argument. It is interesting to know that in the large apple-growing districts what seems to be fabulous prices are paid to beekeepers for the use of bees for pollination purposes alone. In many instances five dollars per colony is willingly paid by orchardists, and this just for the use of the flying bees in the critical season of blossoming; and to such an extent is this practiced that frequently the demand exceeds the supply. If the apple growers of New Jersey and other sections can afford to pay a price that is nearly equivalent to the price of the colony alone, and which is virtually a temporary purchase, we in our districts may be overlooking some of the kinks that might be helpful to us locally in securing better pollination and a crop of better fruit.

Experiments of late years seem to indicate that the prune and cherry drop so prevalent some seasons may be largely due to insufficient or weak pollination, and more frequently blamed to bad weather conditions prevailing at the critical time when the blossom is receptive. This may be more or less true; but with bees on hand, even a few hours without rainfall permit their rapid flight, and the receptive blossoms

awaiting the visitation of insect life are thoroughly pollinated and fertilized by the visitors, who in their turn are more or less recompensed for their labor with the small amount of honey gathered; and unless weather conditions are very unfavorable a single bee will visit hundreds of blossoms before she gets

enough of a load with which to start homeward bound.

Our conditions in the Northwest are somewhat different from those in the Eastern sections. Bees are not as numerous and the distances between apiaries are much greater. This being the case, thousands of trees are never visited by the blessed bees by whose agency man would be greatly benefited if these visitations could be assured. The past season being backward and



ECONOMIC AND MILITARY PREPAREDNESS

THE UNIVERSITY OF OREGON

In addition to complete courses in general and scientific education, offers full opportunities in

MILITARY DRILL, DOMESTIC SCIENCE ARTS AND COMMERCE

Plan for effective future service. Your country needs it. Send for free illustrated booklets, "Train the Brain for Peace or War" and "The Woman and the University." Address Registrar,

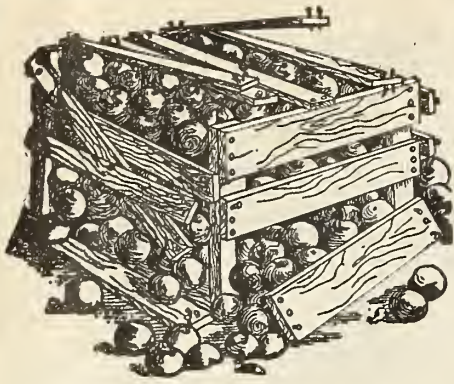
UNIVERSITY OF OREGON, Eugene, Oregon

We Carry a Full Line of Nursery Stock

Capital City Nursery Company

AGENTS WANTED

Address 1030 Chemeketa St., SALEM, OREGON



BEFORE using Cement Coated Nails

Western Cement Coated Nails for Western Growers

Our Cement Coated Nails are always of uniform length, gauge, head and count. Especially adapted to the manufacture of fruit boxes and crates. In brief, they are the Best on the Market.

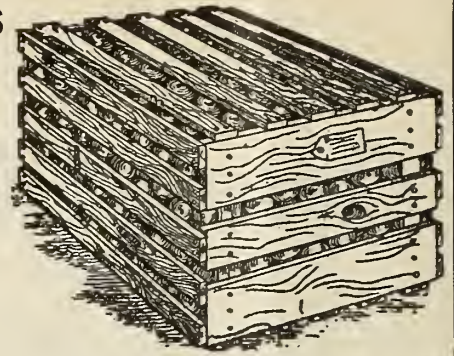
Write for Growers' testimonials.

Colorado Fuel & Iron Co.

DENVER, COLORADO

Pacific Coast Sales Offices

Portland, Spokane, San Francisco
Los Angeles

AFTER use of C. F. & I. Co.'s
Cement Coated Nails

cold found the average orchardist totally unprepared to take advantage of bee insurance; and the same backward season kept the bees from breeding as rapidly as they otherwise would, it was impossible to secure big, strong, rousing colonies, and hundreds of dollars were returned to the would-be purchasers who, as usual, sent in their orders just as the blossoms were due to appear, without foresight as to conditions, and of course demanded immediate shipment.

It is to the orchardist and for his benefit these lines are written. Really, not only disappointment but serious losses are his unless he plans in advance and carries out his plans as a practical orchardist should. In the first place, while it is possible to ship or

transport bees at any and all seasons of the year it is neither best nor practical to do so. Better by far to get the bees now, or this fall, and have them ready for business on the spot before next season's blossoming time. Winter losses need not be severe if they are properly cared for; and the investment is so trifling compared to benefits assured that to beekeepers it seems incomprehensible that of all those who undoubtedly would be greatly benefited by the investment of a few dollars, still annually postpone or procrastinate until too late for prompt service.

We would suggest a community co-partnership affair that all might be assessed and all reap benefits. No stock other than bees will keep themselves and store a surplus for their owner, who merely furnishes them a house. No sweets are as healthy or wholesome as honey, the very source of which must appeal to all interested in flowers, and to be able to eat in quantities the very juice or extract of flowers is something to be devoutly wished for. Then consider the greatly increased crops of fancy fruit, all to be gained by getting and keeping a few colonies of bees. And to all orchardists we urge, get bees, and keep bees, and they will help keep you.

Fruit Crop Conditions of U. S.

New England: The apple crop is reported comparatively light this year.

New York: This is an off year for Baldwins, consequently the crop is very light. However, it is rather surprising, as this is the heavy year for Greenings, to find that the crop of Greenings is also lighter than normal. Western New York, a heavy producing section, is light, but the Hudson River Valley is pretty fair.

New Jersey: Apple crop lighter than last year; peaches show an increase over last year and over normal. The New Jersey apple crop is mostly early varieties.

Pennsylvania: No detailed report, but a possible increase over last year.

Ohio: The crop is estimated at normal, about 2,500 cars, compared with 2,100 last year. The peaches are unsatisfactory on account of unfavorable weather. Crop less than last year.

Michigan: Good crop expected. Baldwins, however, are light. Pears reported good, peaches light.

Virginia: Crop estimated about the same as last year; however, about one-half normal. York and Ben Davis about 30 per cent of last year. Crop of the state estimated about 5,000 cars, compared with 10,545 last year.

West Virginia: Fifty-five to sixty-five per cent of an apple crop is anticipated; peach crop excellent. Late in July it was estimated West Virginia would ship 3,500 cars of peaches.

Indiana: Apple crop anticipated 55 to 65 per cent of normal crop.

Iowa: Apple crop promises to show about 20 per cent increase over last year.

WITH ALL THE NATION
FARMING AND ARMING FOR
STRESSFUL TIMES CITY
AND COUNTRY ALIKE ARE
URGED TO RALLY AROUND
THE AGRICULTURAL FAIRS
—SEND EXHIBITS—ATTEND
WHERE POSSIBLE.

Oregon State Fair

SALEM

September 24 to 29

Round Trip Fares to Salem
From Central Oregon and from
North Bank Road Points from
Fallbridge to Rainier, inclusive,
daily September 20 to 29.

Oregon Trunk Ry.
Central Oregon Line



As it is—

TRUE

—that—

Caro Fibre

FRUIT WRAPPERS

Prolong the Life

—OF—

Apples

You who Grow Apples with great
Expense should Dress them Warm
and Attractively.

Use Your Brains to Wrap Your Fruit.

Give Your Apples a Fair Show.

Get the Top Price.

The Apple Buyer knows Caro Fibre—
Wouldn't You Pay a little more for a box
of apples if you knew that it Would Keep
Longer.

If Your Shipper Doesn't Use

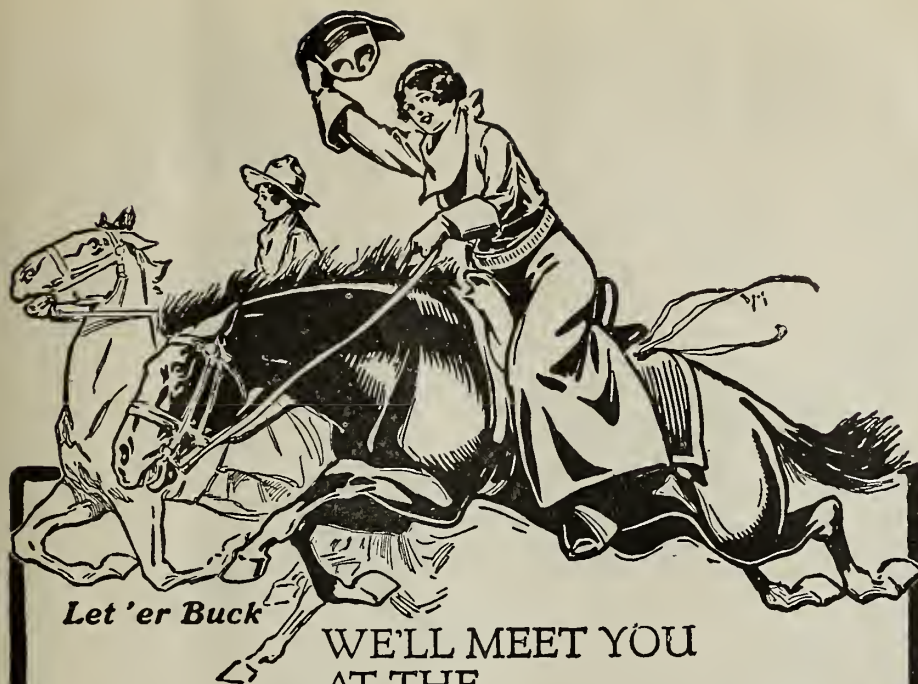
Caro Fibre Fruit Wrappers

he is not giving your fruit a
Fair Show

**Union Waxed & Parchment
Paper Co.**

MANUFACTURERS

F. B. DALLAM, Pacific Coast Representative
417 Market Street
San Francisco, California



WE'LL MEET YOU
AT THE

ROUND-UP

Cowgirls, cowboys, Indians, bronchos, ponies, wild horses and wild cattle and wild men—all will be there—to play and to thrill with their feats of skill and daring. You who know the Round-up we expect to see; you who do not have our most cordial invitation.

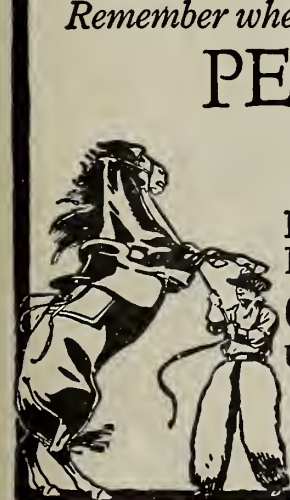
Remember where and when

PENDLETON

SEPT. 20-21-22

LOW ROUND-TRIP
FARES ∞ VIA THE
O-W R R & N
UNION PACIFIC SYSTEM

WM. McMURRAY
General Passenger Agent
PORTLAND



Missouri: Indications in July that the crop in the Ozarks would be heavy. Peach crop anticipated about 50 per cent of normal.

Arkansas: Early reports indicate increase over last year.

Colorado: In July Palisade, Clifton, Fruita, Grand Junction estimated 2,800 cars of apples, 600 cars pears, 900 cars Elberta peaches, being an increase in pears and peaches. Apples show an increase, estimated at about 1,000 cars

over last year. Jonathan shipments expected about September 15. Delta County expects about 800 cars of peaches, 1,500 cars of apples; Montrose County 500 cars of apples. These estimates on apples amount to 4,300 cars, which is above what is generally conceded to the state, which is conservatively placed at 3,500 cars.

Utah: Probably a normal yield; last year almost an entire failure.

Idaho: Various estimates at from 1,500 to 2,500 cars of apples, against almost an entire failure last year.

California: Estimated around 5,000 cars; Pajaro Valley will ship possibly 4,000 cars or better.

Texas: 450 cars apples, 300 cars of pears, 1,500 cars peaches, being a normal yield for apples and pears; but only about 25 per cent of a peach crop. Peaches are light on account of late frosts.

Montana: Probably about 500 cars of apples, principally in the Bitter Root Valley.

Oregon: Hood River 1,200 to 1,500 cars of apples; the balance of the state about 1,000 cars, possibly more.

Washington: Apple conditions vary a little from early reports. Conservative estimate for Yakima district, 7,000 cars, possibly more; Wenatchee estimated about 8,000 cars, possibly more; Walla Walla about 500 cars; other districts 300, making a total of 15,800 cars for the state. July estimates for Yakima were: 971 cars pears, 1,595 cars peaches, 187 cars plums; Walla 238 cars pears, 205 cars peaches, 305 cars plums.

The apple crop of the Pacific Northwest sizes up about as follows: Washington, 15,800 cars; Oregon, 2,500 cars; Idaho, 1,500 cars; Montana, 500 cars; making a total of 20,300 cars. Of course it must be borne in mind these figures are only approximate estimates. Early estimates are frequently high, because when the final packing is done the culling is frequently more extensive than anticipated. A safe estimate at present would be from 18,000 to 20,000 cars of apples.

Economy in Land Clearing

This is no time to use many men in land-clearing operations. Men are needed too badly in other important work for which there is no substitute for hand work, while the prevailing high rate of wages makes burning of stumps prohibitive even in spite of the high returns from crops. It is lucky that every farmer with idle land can turn so easily to the blasting method of taking out his stumps, for the liberal use of powder will enable him to accomplish with little labor what would be almost out of the question by any other means.

But there is blasting and blasting, and it is important that the right explosives be secured, or even this method may be more expensive than it should. All powders on the market (there are dozens of different kinds and grades) have certain uses for which they are particularly suited by their nature. Each one has been designed for breaking up some certain material in a cer-

WE OLD FELLOWS APPRECIATE WHAT IT IS, TO GET THE ORIGINAL GRAVELY.

IT'S TOO BAD PEYTON GRAVELY COULDN'T HAVE LIVED TO SEE THAT POUCH USED FOR HIS PLUG

GRAVELY'S CELEBRATED Chewing Plug

BEFORE THE INVENTION OF OUR PATENT AIR-PROOF POUCH GRAVELY PLUG TOBACCO MADE STRICTLY FOR ITS CHEWING QUALITY WOULD NOT KEEP FRESH IN THIS SECTION. NOW THE PATENT POUCH KEEPS IT FRESH AND CLEAN AND GOOD. A LITTLE CHEW OF GRAVELY IS ENOUGH AND LASTS LONGER THAN A BIG CHEW OF ORDINARY PLUG.

P.B. Gravely Tobacco Co. DANVILLE, VA. ESTABLISHED 1891

THERE'S AN EYE FULL OF NEWS ON BILLY POSTERS BILLBOARDS THIS MORNING—THAT'S A CINCH!

tain way. On the selection of the powder for the use in view hinges a large part of the problem of economy in land clearing this year.

Farmers who will have this work to do should make it a point to inform themselves on the subject. They should do it without delay, for the market is very uncertain, and unless the war is to stop very soon, the supply of any particular grade or type may be cut off from civilian users. More than that, the price is advancing each month or

so, and the man who buys now buys cheapest. For work during the next twelve months, the explosives should be bought now and stored within reach.

Since most stumps throughout the Northwest are large, it seldom pays to blast them out by firing the charges with ordinary cap and fuse. Any one charge that can be loaded under a big stump to take it out, even of the most modern, improved powder, will create a big cavity that takes time to fill. What is needed is a multiplication of smaller charges, located one under each of the main roots. The total cavity then made is no larger than a one or two-stick charge will make, because, though a great deal more powder may be used than one or two sticks, it is spread over a large area.

The electric blasting machine as a labor saver is not yet fully appreciated. The difference between its use for firing charges and the use of fuse starts with the making of the holes for the charges. It is a comparatively quick and easy job to make inch and a half holes with a bar or auger to a depth of two or three feet, but to tunnel under a stump for the loading of a charge as big as a peck measure or larger is another matter. A still further saving results from the thorough splitting apart of the stump body and roots, so that they all may be handled easily by hand—not to mention at length the complete removal of all roots from the ground.

Economy in land clearing this year is a matter of doing a clean, complete job in as little time and with as little man-work as possible. To accomplish it, blasting is the one available means, and proper blasting at that, with carefully selected powder.

To Inspect Perishables

The Food Production Act authorizes the Bureau of Markets, United States Department of Agriculture, to conduct an inspection service in order to certify to shippers the condition as to sound-

WANTED

Complete outfit of used box making machinery, except boiler and engine. Must be in good repair. State price and shipping point in first letter. Address

"Box Maker," care Better Fruit

Wanted Position as manager of bearing orchard. Understand thoroughly all kinds of orchard work. Can give best of references as to ability and character. At present employed, but want to make change.

James F. Worst, Husum, Wash.

Standard Sprays of the World



APPLES

GINOCCHIO-JONES FRUIT CO.

Kansas City, Mo.

Apples, Pears

Prunes, Fruits

—

32 Years Our Record

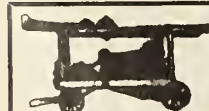
PORTLAND WHOLESALE NURSERY COMPANY

Rooms 6 & 7, 122½ Grand Ave., Portland, Oregon

Wholesalers of Nursery Stock and Nursery Supplies
A very complete line of
Fruit and Ornamental Trees, Shrubs, Vines, Etc.
SPECIALTIES
Clean Coated Grown Seedlings
Oregon Champion Gooseberries and
Perfection Currants

Write Now

Write Now



YOU CAN EARN \$50.00 PER DAY WITH THE Gearless Improved Standard Well Drilling Machine

Drills through any formation. Five years ahead of any other. Has record of drilling 130 feet and driving casing in 9 hours. Another record where 70 feet was drilled on 2½ gallons distillate at 9c per gallon. One man can operate. Electrically equipped for running nights. Fishing job. Engine ignition. Catalogue W-8.

REIERSON MACHINERY CO., Mfg., 1295-97 Hood St., Portland, Ore.

ness of fruits and vegetables and other food products when received at important central markets to be designated by the Secretary of Agriculture.

The service should stimulate proper grading and packing of products intended for shipment and also should have a considerable effect in increasing next year's production, as it will tend to inspire confidence in the minds of producers and will cause farmers to send to the market certain highly perishable commodities which are not now shipped because of persistent reports of arrival in bad condition.

This work still is in a more or less experimental stage, although experiments conducted at Fort Worth, Texas, in the fall of 1916 demonstrated its practicability and educational value to shippers. One or more inspectors will be placed in the more important markets to handle cars regarding which complaints have been received from shippers or receivers. The number of inspectors to be stationed in each city will depend not only upon the size of the market, but upon the number of commodities to be covered by the service. It is contemplated that certain phases of this work will be conducted in co-operation with the United States Food Administration.

Exchange Gives Returns on Berries

Frederick W. Buff of the Fruit Growers' Exchange, Hood River, Oregon, last week completed the closing of the season's strawberry pools. Some excellent returns were made to the growers, as follows: June 4th, \$5.20; 6th, \$4.03; 7th, \$3.50; 8th, \$3.84; 9th, \$3.60; 10th, \$3.80; 11th, \$3.49; 12th, \$3.52; 13th, \$3.52; 14th, \$3.60; 15th, \$3.56; 16th, \$3.56; 17th, \$3.44; 18th, \$3.31; 19th, \$3.33; 20th, \$3.06; 21st, \$2.82; 22nd, \$2.76; 23rd, \$2.90; 24th, \$2.84; 25th, \$1.99; 26th, \$2.50; 27th, \$1.66; 28th, \$2.14; 29th, \$2.10; 30th, \$2.08. July 1st, \$1.90; 2nd, \$1.90; 3rd, \$1.84; 4th, \$1.80; 5th, \$1.85; 6th, \$1.93; 7th, \$2.01; 8th, \$1.99; 9th, \$2.02; 10th, \$1.91; 11th, \$2.03; 12th, \$2.10; 13th, \$2.04; 14th, \$2.09; 16th, \$2.05; 17th, \$1.99; 18th, \$2.08; 19th, \$2.35.

Apple Growers' Association, Hood River, Oregon, prices on strawberries for 1917: June 1 and 2, \$4.80; 3 and 4, \$3.33; 5 to 11, \$3.45; 12 to 15, \$3.51; 16, \$3.64; 17 to 19, \$3.30; 20, \$3.18; 21 to 24, \$2.80; 25 and 26, \$2.63; 27 to 30, \$2.09. July 1 to 6, \$1.81; 7 to 11, \$1.87; 12 to 18, \$2.02; 19 to 27, \$2.25. Both dates given with each price are inclusive.

Food Conservation.

Mr. G. Harold Powell, manager of the Citrus Fruit Growers' Association, Los Angeles, probably the highest paid manager of any fruit association in the United States, has been given a leave of absence so that he could go to Washington to assist Mr. Hoover in the food conservation campaign. No better man could have been sent for this purpose, for the reason that Mr. Powell is familiar and has been interested in the fruit industry from boyhood and understands the business as thoroughly as any man in the United States.

The Portland Picking Bag



The Safe Way for Fruit

PRICES

Single bag \$1.75
Lots of three bags 5.00
Lots of dozen bags 18.50

By insuring both a safe and speedy method of handling fruit, this bag has no equal. Its large opening at the top relieves any hesitation as to where fruit should be placed.

The all-canvass sides and bottom prevent bruising.

Its large capacity saves frequent emptying.

It is carried by shoulder straps, leaving both hands free for picking.

Its emptying arrangement is so simple and efficient that a distinct saving in time and freedom from fruit injury is made.

Its price is so moderate that they should be found in every orchard.

The Hardie Mfg. Co.

49 North Front Street

PORTLAND, OREGON

CALIFORNIA ATTRACTIONS

SAN FRANCISCO
DEL MONTE
MONTEREY
PASO ROBLES
SANTA BARBARA
LOS ANGELES

Very attractive at this season of the year. Automobiling, golf, tennis and all out of door sports.

Round Trip Tickets Now on sale to Southern California points will enable you to visit these places.

Ask your local agent for information.

John M. Scott, General Passenger Agent,
Portland, Oregon

Southern Pacific Lines



This Medford (Oregon) Ice and Storage Company Warehouse
IS INSULATED WITH

Cabot's Insulating "Quilt"

at the lowest cost and with the greatest efficiency and permanence. Quilt is made of eel-grass, the fiber that will not rot, will not burn, will not harbor insects or vermin. It make a thick cushion of dead air spaces that keeps out heat better than other insulators that cost much more and that are not permanent, sanitary or safe. One layer of Quilt is equal in insulating power (by actual test) to forty or fifty layers of common building paper. It is easy to apply, low priced and never goes to pieces in the work.

Send for sample of Quilt, with catalog and prices, to

SAMUEL CABOT, Inc., Manufacturing Chemists, Boston, Mass.

or to the Northwest Distributors:

S. W. R. DALLY, Globe Building, Seattle

TIMMS, CRESS & CO., Portland

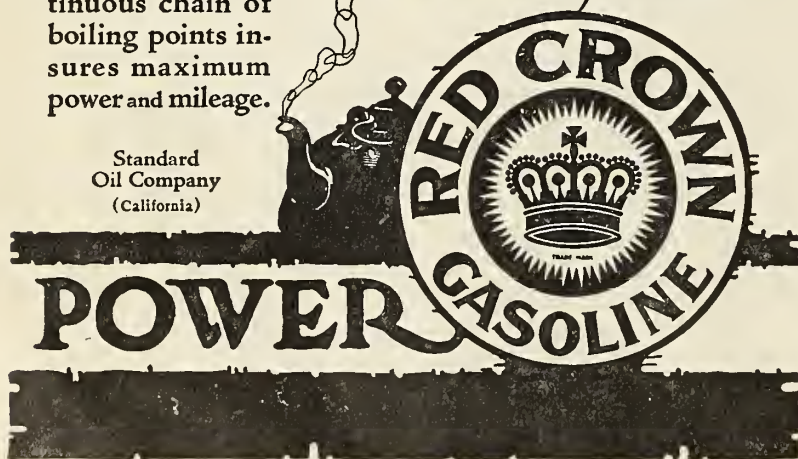
Conserve Wood Preservative—preserves posts, planks and all other timbers.
Cabot's Creosote Stains—for shingles, siding and other outside finish.

United States Government Bureau of Standards tests show Cabot's Quilt more efficient than any other insulator, including cork board.

Red Crown's continuous chain of boiling points insures maximum power and mileage.

Standard
Oil Company
(California)

The Gasoline of Quality



INCREASE THE FOOD SUPPLY

Let hoed crops provide for the present and the high prices obtained pay for a walnut orchard to provide for your future. Hoed crops, such as corn, beans and potatoes, grown between walnut trees will produce more food and income than grain grown on the whole ground. Walnut trees planted 40 feet apart use only a small part of the ground for the first few years. Plant our grafted Vrooman Franquettes. They have won a reputation for reliability and superior quality.

Groner & McClure, Hillsboro, Oregon

How to Can Tomatoes

Select firm, well-formed tomatoes. Scald one and one-half minutes, or until skins loosen. Dip quickly into and out of cold water. Peel and remove stems and cores. Pack directly into cans or hot jars. Press down with a tablespoon (add no water). Add a level teaspoonful of salt per quart. Put the rubber rings and caps of jars into position, but do not tighten fully. Seal tin cans completely. Place the packed containers on a false bottom in a vessel of water sufficiently deep to cover them by one inch and allow to remain at a boiling temperature for 22 minutes when using hot-water-bath canners.

NORTHWEST FAIR DATES

STATE

Oregon—Salem, September 24 to 29.
Washington—North Yakima, September 17 to 22.

Idaho—Boise, September 24 to 29.

Montana—Helena, September 24 to 29.

California—Sacramento, September 8 to 15.

OREGON COUNTY AND LOCAL FAIRS

"Fan-'em-All"—Mitchell, September 3 to 5.

Multnomah County—Gresham, September 11 to 16.

Eastern Clackamas—Estacada, September 12 to 14.

Coos and Curry Counties—Myrtle Point, September 12 to 15.

Morrow County—Heppner, September 13 to 15.

Jackson County—Medford, September 17 to 22.

Community Fair—Hillsboro, September 18 to 20.

Lincoln County—Toledo, September 18 to 20.

Local Fair—Tygh Valley, September 18 to 20.

Polk County—Dallas, September 18 to 20.

Douglas County—Roseburg, September 18 to 20.

Malheur County—Ontario, September 18 to 22.

Linn County—Scio, September 18 to 20.

Clackamas County—Canby, September 18 to 21.

Columbia County—St. Helens, September 19 to 21.

Round-up—Pendleton, September 20 to 22.

Local Fair—Sisters, September 25 to 27.

Wallowa County—Enterprise, September 25 to 28.

West Side Fair—Tumalo, September 28.

Harvest Festival—Grants Pass, September 28 to 30.

Washington County—Forest Grove, October 2 to 5.

Lane County—Eugene, October 3 to 5.

Interstate Fair—Prineville, October 3 to 6.

Local Fair—Albany, October 12 to 14.

WASHINGTON COUNTY FAIRS

Southwest Washington—Cbehalis - Centralia, August 27 to September 1.

Interstate—Spokane, September 3 to 8.

Grays Harbor County—Elma, September 5 to 9.

Pioneer Pow-Wow—Walla Walla, September 13 to 15.

Local Fair—Kelso, September 15.

Cowlitz County—Woodland, September 19 to 22.

Klickitat County—Goldendale, October 9 to 13.

IDAHO COUNTY FAIRS

Madison County—Rexburg, September 3 to 8.

Power County—American Falls, September 12 to 15.

Bingham County—Blackfoot, September 12 to 15.

Twin Falls County—Filer, September 17 to 22.

Latah County—Moscow, September 25 to 29.

Minidoka County—Rupert, October 2 to 6.

Washington County—Cambridge, October 3 to 5.

OTHER EXPOSITIONS

Manufacturers' and Land Products Show—Portland, November 3 to 24.

Northwest Livestock Show—Lewiston, November 8 to 15.

Pacific National Dairy Show—Portland, November 16 to 23.

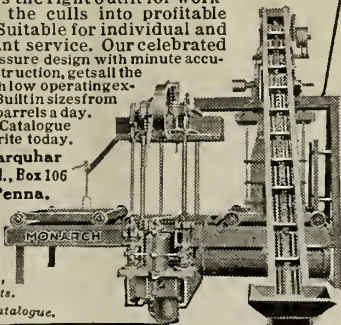
Pacific International Livestock Show—Portland, November 19 to 24.

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1888 Oakland Ave., Kansas City, Mo.
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Packing Apple Ammunition

Continued from page 6.

ened to another box. A rubber cot is worn on the thumb to assist in picking up the paper.

Wrapping apples is quite a trick. As the paper is held in one hand the apple is picked up with the other and placed, or rather thrown, into the middle of the sheet. As the hand closes over the apple the edges are caught by the other hand and given a slight twist, after which the apple is placed firmly in position in the box, folded side of the paper underneath.

Nearly all sizes of apples go into two styles of diagonal packs, three-two and two-two. The former is so called because three apples are placed across the end of the box, then two, and so on. Of the first three, one goes in each corner and one in the middle. The next two fit into the spaces between them, while the next three are placed in a position to the first three. The third and fifth layers are packed the same, but the second and fourth layers are packed two-three. That is, only two apples are laid next to the end of the box, fitting into the spaces below, between the apples in the layer underneath.

The two-two pack is started by placing an apple in one corner and another midway between it and the other corner. Of the next two apples, one is laid next to the space between the two just placed and the other in the space between one of the apples and the side of the box. All the layers in this pack are started the same way, only the corner apple is placed in the opposite corner from the one which contains an apple in the layer below.

Apples of which 104 or less fill a box are put into two-two packs, which have four layers, four rows to the layer, while all smaller sizes are packed three-two, having five layers of five rows each.

A postal scales is a great aid in determining in what pack apples of a certain size will go. This is found by dividing the weight of the apple into the weight of a box of apples, the latter being 45 pounds, or 720 ounces. For example, apples weighing a half pound each go into the 88 pack; seven-ounce apples pack 104; six ounce, 125; five ounce, 150; four ounce, 175. The use of a scales makes it possible to pick out for the grader guide apples of exactly the right size.

In exhibition packs the apples are all turned one way, but in commercial packs they are turned any way to make them fit closely together, so they won't work loose. In some packs, such as the 104 and the smaller three-two packs, the apples in each layer fit closely together, while in others, such as the 112, they must be left quite loose, being held in place by the apples above and below.

Given apples of a certain size, how can they be packed to "come out right"? It is all a matter of selection and knowing which way to turn the apple when it is laid in place. An expert packer must be a good judge of form and size, able quickly and accurately to measure

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"There are some things that the TrackPULL won't do, and you want to know those things before you buy a Bean TrackPULL—and there are other things it will do that other tractors can't do, and those things are vitally important, particularly to vineyardists and orchardists.

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"Look at the illustration. The Bean—6 h. p. at the draw bar—pulls instead of pushes itself over the ground, and you steer with the track that pulls. That means you can do everything with the Bean that you do with horses plus a lot of things horses and other tractors never have done—like going under tree-boughs only four feet off the ground and pulling full load on turns. The Bean works between seven-foot rows in vineyards—that's another advantage.

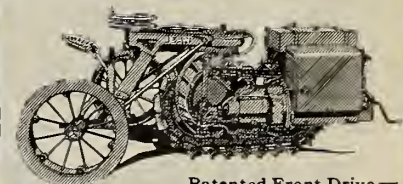
"But I couldn't begin to show you in an ad all the advantages. They've got to go into a book, and you ought to have that book before you buy a tractor because it will save you money."

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WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

the size and shape of an apple with his eye. Since most apples are wider than they are long, the following suggestions will be found useful: To make the rows come out longer, lay the apples on end or on the side, crosswise; to make the rows shorter, lay the apples on the side, lengthwise; to make the layer wider, lay the apples on end or on the side, lengthwise; to make it narrower, lay the apples on the side, crosswise—that is, with the stems pointing across the box. If the box is too full, lay more apples on end; if not full enough, lay more on the side. It is sometimes necessary to choose very flat or very long apples to fit certain positions.

A similar application of the above principle is used to get the bulge on a box of apples, which is especially difficult for a beginner. Not only are slightly larger apples selected for the middle of the box but wide, flat specimens are picked out for that position—if the apples are being packed on the side—and long, narrow apples for the ends. If the apples are being packed on the end this process is reversed, the flat apples being used at the end of the box and the long ones in the middle. When the boxes are nailed up the bulge or crowns should be about three-quarters of an inch on both top and bottom. Before the top is nailed on the apples project above the top of the box about an inch and a half in the middle and half an inch at the ends, when pressed down firmly with the hands.

Bitter Pit—Cause and Control

Continued from page 8

variety comparatively immune to the disease.

A valuable series of stock experiments are also being carried out by Mr. Quinn at the Government Experiment Orchard, South Australia. These trees are of various ages, and some of them are now beginning to produce a fair crop. The thinning experiments carried out by Mr. Quinn may also prove of commercial value. Early thinning may aid in the setting of fruit-buds for the following season, and thus insure a fair crop every season in the case of varieties that tend to bear alternate years. In order to minimize bitter pit in a variety subject to it, it is desirable to encourage regular bearing, and with regular thinning there is a possibility of inducing the habit of annual bearing, instead of having an "off" season. Experiments such as these can only be undertaken in connection with institutions which are likely to continue in existence for a long series of years. A beginning has been made in the government institutions of the School of Horticulture, Burnley, and the Experiment Orchard, South Australia, and it lies with those in authority to see that the work is carried to a successful issue.

We have already shown, in an experimental way, that the apple attains its full size at least a fortnight before it has fully matured; that by means of light pruning the amount of pit is considerably reduced; that under irrigation

conditions the least pit occurs when the trees are lightly watered throughout the season, and the greatest amount of pit when water is too liberally applied late in the season; and that in cold storage a uniform and constant temperature of 30-32 degrees Fahrenheit retards the development of pit and arrests the ripening process. Bailey, in his "Principles of Fruit Growing," recommends that "in the case of apples, it is generally best to pick them, if they are to be stored or exported, just as they have arrived at their full size and when they have attained only a part of their full color. Apples which are slightly green, however, generally continue to keep well after being taken from cold storage.

From these experiments we are fully justified in recommending: (1) For export purposes, to pick the fruit when it has reached its full size, but before it is fully ripe. (2) With pit-labile trees at least, to prune as lightly as possible when the bearing stage is reached, having regard to the bearing capacity of the tree, the vigor of its growth and the symmetrical development of its laterals. (3) When irrigation is practiced, to water lightly throughout the season, according to requirements and in order to keep the trees steadily going. (4) In oversea shipments it is necessary to maintain a constant and uniform temperature of 30-32 degrees Fahrenheit. The most successful shipment of apples from Australia was carried out on this principle. At the bottom of the hold there was a layer of six inches of sawdust, and the sides were lined with vegetable matting, as a good non-conductor of heat.

The export trade in apples from the commonwealth has now assumed large dimensions, and it is gratifying to find that we now know how to regulate the temperature of the freezing chambers so as to prevent the serious losses formerly arising from bitter pit developing on the voyage, and also from uniform temperature and until a line of commonwealth steamers has been established with refrigerating space,

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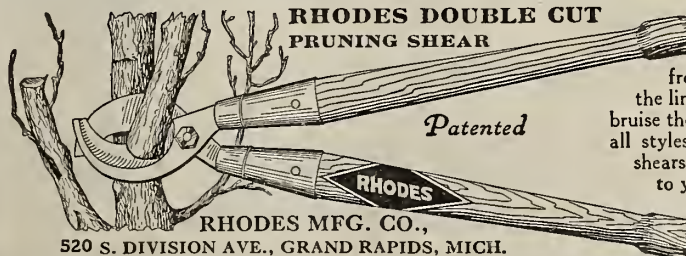
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Dealers everywhere and at our service stations.

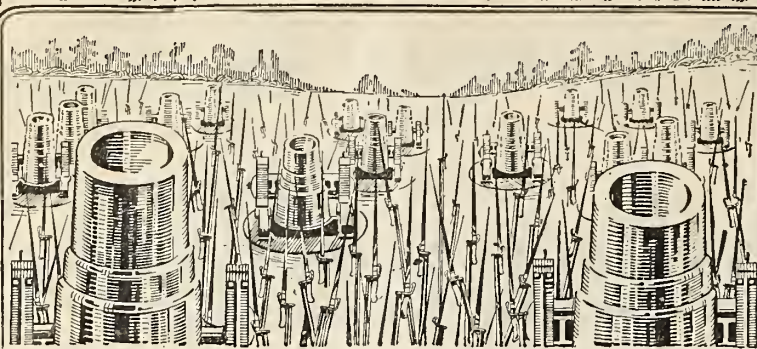
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Every idle acre of reclaimable land on your farm aids the enemy. Every acre of untilled soil deprives many needy mouths of food.

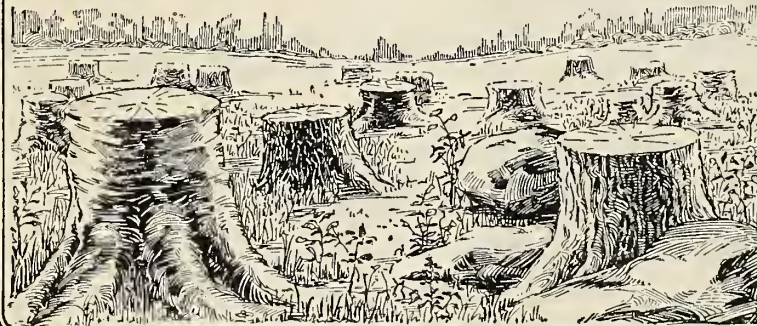
The sinking of each food ship is a disaster, but the idle acres of America could grow more food per year than all of the enemy's submarines can destroy. Fight the enemy now, with

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SEBASTOPOL, CALIFORNIA

when the temperature will be under control, it is desirable to adopt every means which experience has shown to be profitable for the safe carriage of the fruit.

The age of the trees has an influence on the development of pit, and this was clearly stated in my second report under the heading of "Old Apple and Pear Trees": "It is a well-known fact that young and vigorous trees are liable to this disease, while old and well-established trees are comparatively free, and this is just what would be expected from a consideration of the factors contributing to it."

An experienced shipper has given practical confirmation of this view in a letter recently received, and it is worthy of the attention of those orchardists engaged in the export trade. Mr. F. W. Moore, who was formerly Secretary to the Council of Agriculture in Tasmania and now belonging to a firm of Australian fruit merchants, Covent Garden, London, has kindly placed at my disposal his experience, extending over sixteen years. In 1900 he started shipping apples from Tasmania and came over to London with his first consignment, which landed in good condition. Next year he shipped two consignments of apples by way of the Cape, and had not only seen these apples growing on the trees, but many of them were wrapped and picked in his presence, and he felt satisfied that no better fruit had been shipped. When the fruit was opened in London, he was astonished to find that a very large proportion of the Ribston Pippins were badly affected with bitter pit. It so happened that a very large proportion of this variety, which was the only one affected, had been grown on young trees.

In 1902 he started the business in London of supervising the handling and sale of Tasmanian apples, and since that time his firm has had to do with the shipments of apples from all parts of Australia. As the result of this large experience he has come to the following conclusions: (1) That Ribston Pippins from older trees show less bitter pit than from younger trees, and instances the case of a Tasmanian grower who never ships this variety to England from trees under ten years old, and while bitter pit is never altogether absent from his consignments, it has never been very bad. (2) That fruit

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from young trees is more severely attacked is strikingly confirmed by the fact that fruit from Northern Tasmania has shown a higher percentage of bitter pit than that from the south of the island. Fruit growing in Northern Tasmania is comparatively a new industry and a very large proportion of the trees there cannot be more than ten to twelve years old in the orchards which have been planted for commercial purposes.

In keeping with this view, West Australian fruit is often found to be badly affected, and it is known that a large proportion of the apple trees in that state are still comparatively young. It must not be forgotten that the fruit referred to, which was found to be badly affected on reaching London, had been placed on board comparatively free from any visible sign of pit. Kept at the proper temperature, it has been experimentally proved that the development of pit would have been retarded, but at the same time it suggests that many of these apples, if allowed to remain on the trees, would have become pitted.

In the experimental orchard in Western Australia, the Cleopatra trees were only ten years old when the fruit was picked, and this will partly account for the high percentage of pit in a season particularly favorable for its development. Just as the proper regulation of the temperature controls the pit in cold storage, so will the proper system of pruning in the orchard control it in the fruit still growing on the tree.

In seeking for the cause of this disease, we are at the same time endeavoring to discover how to prevent it, for by removing or counteracting the cause the effect will not be produced. Even although the cause is discovered, it is not always possible to get rid of it, and then we seek to minimize its effects. According to the nature of the cause or the supposed cause, so will be the nature of the remedial measure.

In France the insect origin of the disease is generally accepted, and accordingly the measures recommended are those calculated to destroy injurious insects. But we have found that the disease is produced even when insects are excluded, as in the case of apples grown inside calico bags, so that the special disease of bitter pit does not originate in this way.

In America it is sometimes mistaken for a disease caused by a fungus, and spraying with fungicides is resorted to,

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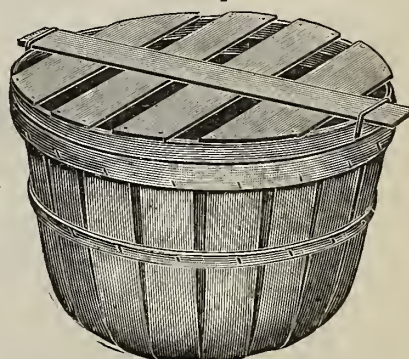
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but the "bitter rot," for which it is mistaken, is quite a different disease, and all attempts to associate a fungus with bitter pit have failed. If we cannot always decide definitely what the cause of a disease is, it is important to know what it is not, in order to save the application of useless remedies. Bitter pit is due neither to insects nor fungus, nor even to bacteria, and therefore it is not parasitic in its origin.

In Australia it has been frankly confessed that the cause was unknown and that it required investigation.

The result of this investigation goes to show that the primary cause of the trouble is the extra pressure of the sap in the outermost layer of pulp-cells to begin with, causing them to burst and collapse, together with the vascular network associated with them. A large number of well-established facts have been brought forward to support this view, which has suggested the best known means of reducing the amount of pit in the orchard, and these remedies are supported by experimental evidence.

The cause having been considered, the control of the disease may now be attempted from a rational standpoint. Whatever tends to regulate the "flow of sap" and distribute it to the various fruit-buds so that each receives its due share without being over-gorged, will also tend to prevent pit. It is evident that pruning is the great factor here, and it has been proved experimentally that the pit in a susceptible variety such as Cleopatra may be reduced to 4-6 per cent by this means. But the fruit may be picked from the tree without any external trace of bitter pit and develop it afterwards. It was one of the main objects of this investigation to prevent the loss due to this cause in overseas shipments of fruit, and this serious loss may now be prevented by the exercise of common-sense methods. By keeping the fruit in cold storage at a uniform temperature of 30-32 degrees Fahrenheit, the development of bitter pit is retarded, and at the same time the ripening process is arrested. This is based upon the well-known principle that at that temperature there is a slowing down of the vital activities, and it is practically a case of suspended animation. All these results have been obtained by the experimental method, which is the only sure and satisfactory way of advancing our knowledge and at the same time assisting the orchardists. The practical applications have already been given and reported upon.

We are informed that a new booklet has just been published on reducing cider to boiled cider and apple jelly and the manufacture of apple butter by the steam process. Information on this subject will be of value to the fruit growers, especially this year, when all waste must be conserved to the fullest possible extent, and all perishable fruits converted into by-products for food use. This booklet, which is known as Catalogue No. 82, will be sent free on request by the Hydraulic Press Manufacturing Company, Mt. Gilead, Ohio.—Adv.

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The operation is simple, consisting of a belt for a conveyor, operated by electricity or gasoline engine, and short elastic belts, which move each apple in the proper bin from the belt conveyor.

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Built for four sorters, the grader is 28 feet long and 9 feet wide built for eight sorters, 32 feet long.

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